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Dröge, Susanne; Asselt, Harro van; Das, Katsuri; Mehling, Michael

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Susanne Dröge, Harro van Asselt,
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SWP
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German Institute
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Ludwigkirchplatz 3–4
10719 Berlin
Germany
Phone +49 30 880 07-0
Fax +49 30 880 07-100
www.swp-berlin.org
swp@swp-berlin.org

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Dr. Susanne Dröge is a Senior Fellow in the Global Issues Division at SWP.
Prof. Dr. Harro van Asselt is a Senior Research Fellow at the Stockholm Environment Institute Oxford Centre and Professor of Climate Law and Policy at the University of Eastern Finland Law School.
Prof. Dr. Kasturi Das is a Professor for Economics and International Business at the Institute of Management Technology in Ghaziabad, India.
Michael Mehling is Deputy Director of the Center for Energy and Environmental Policy Research at the Massachusetts Institute of Technology, United States.

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Mobilising Trade Policy for Climate Action under the Paris Agreement: Options for the European Union

The European Union (EU) has been advocating climate policy ambitions from the very beginning of the international climate regime. In 2015, when the Paris Agreement was adopted, the EU helped to pave the way for a new universal regime, which includes actions by parties to the agreement, be they industrialised or developing countries. Climate action, however, needs support across nearly all fields of national and international policy-making. Nations that embark on, or intensify, an agenda to reduce emissions will not act in isolation. Also, emitters, such as companies, often compete on international markets. Therefore, climate policy measures can have trade implications. This is why the international trade regime – including the World Trade Organization (WTO) and a large number of regional trade agreements (RTAs) – plays an increasingly important role for the implementation of the Paris Agreement.

In this research paper, we ask how trade policy could be made more supportive of climate action and discuss the relationship between the regimes established by the WTO and the United Nations Framework Convention on Climate Change (UNFCCC), the provisions and pending disputes under the WTO, and the role of RTAs. We look into the features of the Paris Agreement that relate to trade and highlight several options for how policy-makers in the EU and elsewhere could address the relationship between the two regimes from a legal and institutional perspective. In particular, the suggested options relate to fields where the EU has taken climate action in recent years and which are part of the 188 intended nationally determined contributions (INDCs) submitted in the run-up to the Paris Agreement.

The international trade policy landscape has become increasingly fragmented. More regional agreements have led to a diminishing role for the WTO. At the same time, however, the WTO dispute settlement system has to decide on an increasing number of cases that indirectly connect to national climate policies, in particular national measures to promote renewable energy production that impact trade partners in an unfavourable way. These seemingly contradictory observations matter for the implementation of the Paris

Agreement. First, many RTAs include climate-related and environmental provisions (e.g. the North American Free Trade Agreement, NAFTA), and could thus help prevent a regulatory race to the bottom and promote climate protection. Second, the increasing number of WTO disputes over national renewable energy policy regulations points to the case-by-case nature of WTO rule application on the one hand, and to a more systemic conflict of national approaches with the WTO obligation of non-discrimination on the other.

Against this background, the EU, which is a traditional supporter of the multilateral trading system, has to consider how to make its climate policy agenda consistent with trade ambitions. Promising ways for lowering emissions fast are to disseminate climate-friendly technologies, to export the EU climate governance approach including policy instruments, and to incentivise low-carbon investments through carbon pricing. The European Commission and the EU Member States should integrate into their thinking how trade policy could promote these steps. Trade policy is one of the key mandates of the EU, but it has become subject to immense public and political pressure during the last years. As a reaction to the fierce protest against the Transatlantic Trade and Investment Partnership (TTIP) negotiations, in 2015 the European Commission suggested a "Trade for All" strategy, which aims at promoting transparency, sustainable development, and human rights as key aspects when negotiating new trade agreements. This strategy can help build trust in the EU trade agenda and promote environmental standards in trade talks, but it needs to go beyond a political declaration and receive more and explicit support from the EU Member States.

The EU has actively taken part in the negotiations on an Environmental Goods Agreement (EGA) with 16 other WTO members. The EGA talks under the WTO need another diplomatic push following a breakdown in December 2016 due to a stalemate between the EU and China. Also, there have been a number of conflicts around solar panels and steel trade with China. Yet, EU-China cooperation is key to ensure the success of the Paris Agreement at a time when the current US administration is turning its back on both the climate treaty and free trade. Not only the EGA, but also cooperation on climate policies and on technology could help make this partnership more fruitful.

As a longer-term vision, the EU should insist on the role of the WTO and its rules-based multilateral system, also in addressing climate change. The global regime needs to give guidance on what is unacceptable protectionism and what are legitimate climate policy targets. Among the legal options, the introduction of an authoritative interpretation of the exception rules of the General Agreement on Tariffs and Trade (GATT) could clarify the scope of exceptions to trade obligations in the longer term. Also, the dispute settlement mechanism under the WTO could increase competence by including climate-related expertise.

In the medium term, negotiations of RTAs are a way forward for developing cooperation on rules on climate and trade with key EU partner countries. With an expansive scope that covers not only market access, but also regulatory coherence, RTAs can pave the way for supporting national climate policies through trade cooperation. Mega-regional trade deals (such as TTIP, or the Comprehensive Economic and Trade Agreement, CETA) have the potential to diffuse climate protection rules more widely as long as the negotiating parties have a common interest in avoiding a race to the bottom in setting climate policy standards. Although prospects for a common EU-US agenda are low with the current Trump administration, this strategy could be resumed with other partners, including China, Japan, Australia, or India. The EU could further start a review process of existing trade agreements, in particular those with developing countries.

In the short term, the EU and its Member States should push for more transparency at the international level between the bodies of the WTO and the UNFCCC. To achieve this, an extended institutional setting at the WTO, for example through a Committee on Trade, Environment and Climate Change, would be one option. Another option would be to encourage increased coordination of existing bodies at the WTO (e.g. the Committee on Trade and Environment (CTE), and the Trade Policy Review Mechanism) and at the UNFCCC (e.g. the Subsidiary Body on Scientific and Technological Advice, and the improved forum on the impact of the implementation of response measures), with the aim of regular and detailed exchanges of information on the implementation of nationally determined contributions (NDCs).

The Climate and Trade Regimes

The interactions between the climate regime and the trade regime have been increasing over the last three decades. The separation between trade and environment as unconnected policy fields has become diluted since the 1990s, due to pioneering regional trade agreements (RTAs) including environmental provisions such as the North American Free Trade Agreement (NAFTA), as well as due to World Trade Organization (WTO) case law on trade measures that were taken to protect the environment.

Figure 1 illustrates the trade and climate regimes and their commonalities. In particular, both are connected by political initiatives such as the negotiation of an Environmental Goods Agreement (EGA), pushed first by the Asia-Pacific Economic Cooperation (APEC) nations and then by the European Union (EU), under the WTO, or by the nationally determined contributions (NDCs) now part of the post-2020 Paris climate regime. Increasingly, the rules and norms of the regimes relate to each other, determining how climate actions by WTO members can be made compatible with WTO rules, or, vice versa, how WTO rules could help design climate policies in the international context. Last but not least, institutions and processes overlap to an increasing degree, for example in the negotiations among parties to the United Nations Framework Convention on Climate Change (UNFCCC), the WTO, or both.

The EU has been advocating climate policy ambitions from the very beginning of the international climate regime. In 2015, when the Paris Agreement was adopted, the EU helped to pave the way for a new universal regime. For the EU and for all other countries with climate targets, performance will depend in particular on the integration of climate policy-making in a variety of other policy fields, including trade policy.

Trade liberalisation can, on the one hand, foster the fast uptake of climate-friendly goods and services and foster the deployment of clean technologies. Countries following-up on their NDCs will need access to these technologies, which not only relate to energy efficiency or renewable energy production, but also to reducing all harmful greenhouse gases across the economy. On the other hand, national climate policy measures can collide with trade rules due to conflicting principles and priorities, for example on protectionism. As such, these rules need to be discussed and evaluated with a view to their potential of supporting climate policy without compromising trade.

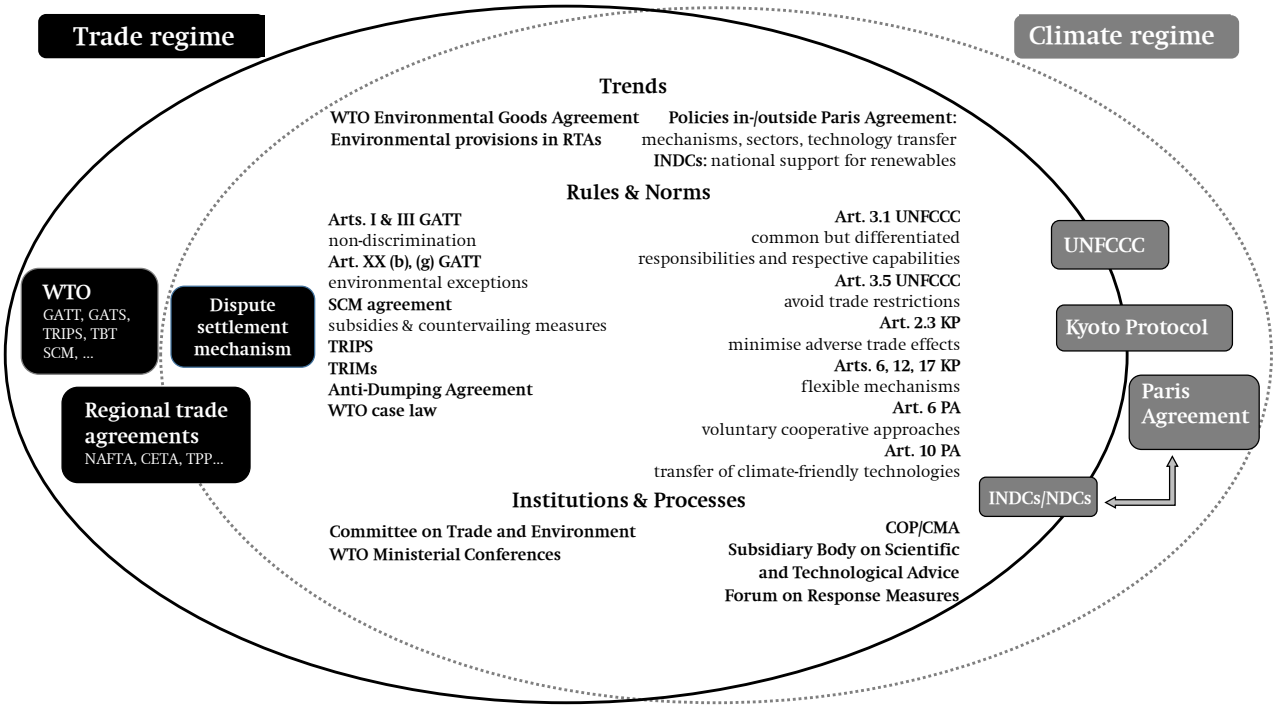
The political climate in the EU and the United States (US), however, has changed considerably since the entry into force of the Paris Agreement on 4 November 2016. With President Donald Trump in office, both US climate protection and open trade have come under pressure from the "America First" approach. This may have severe ramifications for the implementation of international climate policy,[1] with deregulation emerging as a key prong of the new administration's policies, and the notified intention to withdraw from the Paris Agreement. There are also significant implications for trade policy, with the new president withdrawing from the Trans-Pacific Partnership (TPP) on his fourth day in office. This poses new challenges for trade-and-climate policy interactions. For instance, the Mexican under-secretary for environmental policy and planning contemplated publicly about imposing a carbon tariff against the US.[2] In addition, the EU was facing major internal conflicts about the negotiations of transatlantic trade deals already before the 2016 US elections. The Comprehensive Economic and Trade Agreement (CETA) with Canada was at the brink of failing to secure approval from the Wallonian parliament in Belgium in late 2016,[3] and the Transatlantic

1 Susanne Dröge, *International Climate Diplomacy after the Trump Election Victory. Germany and the EU Should Intensify Their Outreach to Climate Allies*, SWP Comments 50/2016 (Berlin: Stiftung Wissenschaft und Politik, November 2016).

2 See Coral Davenport, "Diplomats Confront New Threat to Paris Climate Pact: Donald Trump", *New York Times*, 18 November 2016, http://www.nytimes.com/2016/11/19/us/politics/trump-climate-change.html?_r=1 (accessed 8 December 2017).

3 The national and some regional governments had to approve CETA because it was proposed as a "mixed agreement" by the European Commission. See European Commission, "European Commission Proposes Signature and Conclusion of EU-Canada Trade Deal", 5 July 2016, http://europa.eu/rapid/press-release_IP-16-2371_en.htm (accessed 8 December 2017). The EU and Canada signed the agreement, only after a late veto of the local government of Wallonia, Belgium, could be averted, see "If the EU Cannot Do Trade, What Can It Do?", *The Economist*, 29 September 2016. In February 2016, CETA was approved by the European Parliament (408 votes in favour, 254 against, and 33 abstentions).

Figure 1
Overview – The interactions between the trade and the climate regime



Source: Own presentation.

Trade and Investment Partnership (TTIP) with the US had become the subject of public protests and political interventions by EU Member States. The exclusive EU competence on trade relations (see Box), which was deepened under the 2009 Lisbon Treaty, has been brought into questioned by these conflicts around mega-regional agreements, adding political complexity.[4] In particular, the public protests addressed investment rules, which the EU can negotiate, according to the Lisbon Treaty, for all Member States, and which the European Parliament can either agree to or veto.[5]

With the increasing importance of national measures following the adoption of the Paris Agreement, synergies and conflicts between the two policy fields can be expected to change further, and faster. A key indicator in this regard are the WTO disputes that have emerged in recent years, centring on renewable energy production and trade in related goods and services. The inclusion of environmental and climate policy provisions in RTAs, starting with NAFTA, further shows that there is a demand for policy coordination. In light of the changing political environment, the appetite for such coordination seems to be waning in the Western hemisphere. However, given the role of trade in the faster dissemination of technologies and regulatory approaches, big players such as the EU and China will need to strengthen their trade policies in this respect, for example by negotiating improved market access with key partner countries.

4 The European Commission claimed exclusive competency on CETA, in line with EU treaties. France, Germany and other member state leaders in the European Council insisted that the European Commission proposed CETA as a mixed agreement. The European Court of Justice still could evaluate this in the near future. See "CETA to Be Concluded As a Mixed Agreement; Commission Hopes for Signing in October" (Winnipeg: International Institute for Sustainable Development [IISD], 10 August 2016), https://www.iisd.org/itn/2016/08/10/ceta-to-be-concluded-as-a-mixed-agreement-commission-hopes-for-signing-in-october/ (accessed 8 December 2017).

5 The European Commission suggests a "Trade for All" strategy as a way forward. It shall retaliate the push for free trade with EU partners in ongoing talks (China, Japan, or the US) with demands for transparency, sustainable development and social standards. European Commission, "Trade for All – Towards a More Responsible Trade and Investment Policy", 2015, http://trade.ec.europa.eu/doclib/docs/2015/october/tradoc_153846.pdf (accessed 8 December 2017).

Box
The European Union's exclusive competence on trade

The "exclusive competence" (Article 3 Treaty on the Functioning of the European Union, TFEU) of the EU in trade issues (Articles 206, 207 TFEU) has been challenged in the course of CETA and TTIP approvals. With regards to these mega-regional agreements, EU Member States argued that they should be categorised as "mixed agreements". According to EU law, agreements with a mixed character need to be ratified by the domestic ratification procedures of EU Member States.[a] During the negotiations of both CETA and TTIP, legal distinctions of the categories were uncertain.

In the case of CETA, national and some regional governments had to approve the agreement. The European Commission planned to claim exclusive competence on CETA beforehand.[b] This is a procedure without veto power for the Member States. However, France, Germany, and other Member State leaders in the European Council insisted that CETA should be categorised as a "mixed agreement".[c] Due to the political resistance of the Member States and the legal uncertainty, the European Commission then proposed to sign CETA as a mixed agreement.[d] The EU and Canada could only sign the agreement after an intense political struggle, including a late veto by the local government of Wallonia, Belgium, In February 2016, CETA was approved by the European Parliament (408 votes in favour, 254 against, and 33 abstentions).

In May 2017, the European Court of Justice (ECJ) issued its highly anticipated opinion on a procedure regarding the exclusive competence. The request for an opinion by the ECJ was initiated by the European Commission and aimed at clarifying the distinction between exclusive and shared competences in the EU-Singapore trade agreement, which emerged during the adoption of this agreement in 2014. Although the ECJ ruling deals with this particular agreement, its result is interpreted as a clarification of the EU treaties in general.[e] Therefore, the following allocation of areas to different forms of competences by the ECJ will shape future trade negotiations:

Exclusive competence has been identified regarding goods and services market access (including transport), public procurement, energy generation from sustainable non-fossil sources, direct foreign investment protections, intellectual property rights, competition rules, sustainable development, and exchange of information in areas that involve notification, verification, cooperation, mediation, transparency, and disputes. **Shared competence**, which requires national consent, has been identified for non-direct foreign investments as well as the regime governing "dispute settlement between investors and States".[f]

a See European Parliament, *A Guide to EU Procedures for the Conclusion of International Trade Agreements*, October 2016, http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/593489/EPRS_BRI(2016)593489_EN.pdf (accessed 8 December 2017).
b See "EU Commission to Opt for Simple Approval for Canada Deal: EU Official", *Reuters*, 28 June 2017, http://www.reuters.com/article/us-eu-canada-trade/eu-commission-to-opt-for-simple-approval-for-canada-deal-eu-official-idUSKCN0ZE2BG (accessed 8 December 2017).
c European Parliament Research Service, *Is CETA a Mixed Agreement?*, 1 July 2017, http://www.europarl.europa.eu/RegData/etudes/ATAG/2016/586597/EPRS_ATA(2016)586597_EN.pdf.
d "European Commission Proposes Signature and Conclusion of EU-Canada Trade Deal", European Commission, 5 July 2016, http://www.europarl.europa.eu/RegData/etudes/ATAG/2016/586597/EPRS_ATA(2016)586597_EN.pdf (accessed 8 December 2017).
e See International Center for Trade and Sustainable Development (ICTSD), "*European Court of Justice Rules on EU Competence in Singapore Trade Deal*", *BRIDGES* (18 May 2017), https://www.ictsd.org/bridges-news/bridges/news/european-court-of-justice-rules-on-eu-competence-in-singapore-trade-deal (accessed 8 December 2017).
f Court of Justice of the European Union, "The Free Trade Agreement with Singapore Cannot, in Its Current Form, Be Concluded by the EU Alone", Press Release no. 52/17, https://curia.europa.eu/jcms/upload/docs/application/pdf/2017-05/cp170052en.pdf (accessed 8 December 2017).

The Climate Regime – from the UN Framework Convention to the Paris Agreement

The UNFCCC was adopted in 1992 at the Rio Conference on Environment and Development. With 196 parties, it has nearly universal participation. It sets out the main objective of the climate regime as "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".[6] However, the UNFCCC did not specify the legal obligations to achieve this objective, and thus parties started negotiating a protocol to stipulate mitigation targets for developed countries. This led to the adoption of the Kyoto Protocol in 1997, which now has 192 parties. The Protocol required industrialised countries to collectively reduce average greenhouse gas emissions by 5.2 per cent during the 2008–2012 period (i.e. the first commitment period), compared to 1990 levels. As an innovation, it introduced several market-based instruments ("flexible mechanisms") to allow for cost-effective mitigation. Although developing countries have signed and ratified the Kyoto Protocol, they do not have any concrete obligations to reduce their emissions. With the 2012 Doha Amendment to the Kyoto Protocol, parties agreed on a new commitment period for 2013–2020.[7]

The Paris Agreement was adopted by the 195 parties to the UNFCCC on 12 December 2015 and has been ratified by 174 states (January 2018).[8] It entered into force on 4 November 2016. Its purpose is: (1) to limit the global average temperature increase to "well below" 2 degrees Celsius above pre-industrial levels and "to pursue efforts" to achieve 1.5 degrees Celsius; (2) to enhance the ability to adapt to climate change, to increase the resilience, and to develop mechanisms to reduce greenhouse gas emissions; (3) to make financial flows consistent with a low-emissions pathway and climate-resilient development. Unlike the Kyoto Protocol, the core obligations under the Paris Agreement apply universally to *all* UNFCCC parties, and not just developed-country parties.[9] The Paris Agreement requires all parties to prepare and communicate NDCs, which will have to be reviewed and updated every five years, with each new NDC required to be more ambitious than the previous one.[10] The Agreement further specifies actions in the area of adaptation, as well as obligations related to the "means of implementation" (i.e. financial, technological, and capacity-building support).

The UNFCCC and the Kyoto Protocol both include explicit references to trade-policy concerns. The language used is partly identical to that found in the General Agreement on Tariffs and Trade (GATT),[11] aiming at preventing protectionist applications of climate policy measures. The Paris Agreement, by contrast, does not contain any references to trade, due mainly to the diverging positions of developed and developing countries.[12]

In order to offer institutional space for discussing such critical issues, parties to the UNFCCC created a forum on the impact of the implementation of response measures in 2010.[13] The work of the forum was required to take into account "all relevant policy issues of concern".[14] Although its work programme does not directly tackle the climate–trade overlap, technical work on assessing the impacts of response

6 *United Nations Framework Convention on Climate Change* (UNFCCC) (1992), https://unfccc.int/resource/docs/convkp/conveng.pdf (accessed 8 December 2017).
7 By November 2017, 84 states had ratified the Doha Amendment; 144 out of 192 (3/4) are needed, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-c&chapter=27&clang=_en#EndDec (accessed 8 December 2017).
8 http://unfccc.int/paris_agreement/items/9444.php (as of 8 February 2018).
9 UNFCCC, *Paris Agreement*, 2015, https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf (accessed 8 December 2017). For an overview of the new regime, see Susanne Dröge, *The Paris Agreement: Turning Point for the International Climate Regime*, SWP Research Paper 4/2016 (Berlin: Stiftung Wissenschaft und Politik, February 2016).
10 In 2015, parties to the UNFCCC have submitted their INDCs, which will have to be updated and turned into NDCs under the Paris Agreement.
11 Article 3.5 UNFCCC (1992) states that climate policy measures should not "constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade".
12 Harro van Asselt, *Fragmentation of Global Climate Governance. Consequences and Management of Regime Interactions* (Cheltenham, UK, and Northampton, MA: Edward Elgar, 2014); Nicholas Chan, "The 'New' Impacts of the Implementation of Climate Change Response Measures", *Review of European, Comparative and International Environmental Law* 25, no. 2 (2016).
13 UNFCCC, *Decision 1/CP.16*, 2015, http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf (accessed 8 December 2017). UNFCCC, *Paris Agreement*, Article 4.15 (see note 12); Chan, "The 'New' Impacts of the Implementation of Climate Change Response Measures" (see note 12). The forum is now called the "improved forum".
14 UNFCCC, *Decision 1/CP.21*, para. 6, 2015, https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf (accessed 8 December 2017).

measures suggests that trade-related impacts are being considered.[15] In particular, the UNFCCC guidance on the impact assessment of response measures on developing countries mentions trade impacts from tariffs and border carbon adjustments (BCAs).[16]

With the adoption of the Paris Agreement, the climate regime has witnessed an evolution towards a universal regime that requires mitigation efforts from all parties, but leaves open what kind of action parties undertake. The shift towards a more "bottom-up" approach to international climate policy holds potential implications for trade, as the resulting flexibility allows for a variety of measures that could have trade implications, and for which a supportive trade policy setting would be helpful.

The World Trade Regime and Its Interactions with the Climate Regime

The international trade regime has also undergone important changes in recent years. Although a well-established system of trade rules has been in place for more than 20 years, and WTO members now include the world's major trading nations, the single undertaking approach that led to the WTO in the first place has created difficulties. Flanked by an increasing number of RTAs – and, more recently, new mega-regional agreements – the relevance and dominance of the WTO in setting international trade rules has been challenged. This, in turn, may offer both opportunities and risks for global climate protection, because there is a lack of guidance on the one hand, and space for new mutually supportive rules on the other.

The World Trade Organization

The origins of the world trade regime date back to 1947, when the GATT was adopted. The WTO was established in 1995, following the conclusion of the Uruguay Round of trade negotiations (1986–1994). The WTO, which had 164 members in 2017, is the institutional umbrella of a series of six sub-categories of agreements, including 14 agreements on trade in goods (e.g. GATT), and five other types of agreements, such as the General Agreement on Trade in Services (GATS) and the Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS).[17]

The key objective of the GATT was to promote the liberalisation of trade in goods for the benefit of its members. It sets out a number of trade principles, most notably that trade measures imposed by a member shall not discriminate between different trade partners (known as the most-favoured nation (MFN) obligation; Article I).[18] Neither shall they discriminate against imported goods from other members vis-à-vis "like" domestic goods (the national treatment obligation; Article III).

Although initial rounds of trade talks under the GATT were devoted to bringing down tariffs, later negotiation rounds (starting with the Tokyo Round, 1973–1979) broadened the scope to non-tariff barriers, such as import licensing, rules of origin, and investment measures. Over time, the multilateral trade regime came to cover new areas, such as services (through the GATS), intellectual property rights (through the TRIPS Agreement), technical standards (through the Agreement on Technical Barriers to Trade, TBT), and subsidies (through the Agreement on Subsidies and Countervailing Measures, SCM).

An important feature of the WTO is its strong dispute settlement mechanism, which extends the GATT's practice.[19] The same dispute settlement rules apply to disputes under virtually all WTO agreements, subject to any special or additional rules in an individual agreement.[20] Yet, the politically desirable outcome of a dispute is a resolution of the conflict through consultations, or, more generally, a solution mutually acceptable to the parties to the dispute. If this is not possible, the primary objective of the process is to withdraw the measure under contention, with compen-

15 For the work programme, see http://unfccc.int/cooperation_support/response_measures/items/7418.php (accessed 8 December 2017).

16 UNFCCC, *Guidance to Assist Developing Country Parties to Assess the Impact of the Implementation of Response Measures, Including Guidance on Modelling Tools*, Section III, A 36 (e), p. 8, 2016, http://unfccc.int/resource/docs/2016/tp/04.pdf (accessed 8 December 2017).

17 WTO, *Agreement on Establishing the WTO*, 1995, https://www.wto.org/english/docs_e/legal_e/04-wto.pdf (accessed 8 December 2017).

18 More specifically, a WTO member is obliged to provide to another WTO member treatment that is "no less favourable" than what it accords to any other country, irrespective of whether that country is a WTO member.

19 WTO, *Agreement on Establishing the WTO* (see note 17), Article III.

20 The WTO's dispute settlement understanding (DSU) specifies the scope of jurisdiction of the WTO dispute settlement mechanism, limiting it to the "covered agreements" listed in Article 1.1 DSU.

sation and retaliation being avenues of last resort.[21] In contrast to the GATT's diplomatic norms, which were criticised for lacking the "teeth" necessary to ensure compliance, the dispute settlement mechanism has been described as being "the most developed dispute settlement system in any existing treaty regime".[22] This is reflected in a total of 500 disputes over the 20-year history of the WTO, which strongly contrasts with the total of 300 disputes brought under the dispute settlement system of the GATT – the predecessor to the WTO – over a period of 47 years (1947–1994).[23]

In 2001, a new round of trade talks – the Doha Development Round – was launched to expressly address issues of importance to developing countries. The Doha Round includes negotiations on the reduction or elimination of tariffs and non-tariff barriers on environmental goods and services. Like previous rounds, the Doha Round negotiations follow a single undertaking approach, in which countries agree on all issues together. This prevents countries from cherry-picking issues, but it makes consensus more challenging. The Doha Round largely came to a halt in 2008, and little progress has been made since then. Nevertheless, WTO members managed to reach agreement on the 2013 "Bali package" (covering trade facilitation, food security in developing countries, and cotton trade), and the 2015 "Nairobi package" (including an agreement to eliminate agricultural export subsidies).[24]

Multilateral trade ambitions have faded since the 1990s due to a host of factors, such as emerging markets, shifting powers, and related national and regional interests, all on top of the large number of trade-related issues that are more complicated to negotiate than tariff rates. The EU was one of a few WTO members that held on to a multilateral trade agenda, but eventually gave in to the new realities by starting to sound out the benefits of TTIP and CETA, both of which were negotiated intensively during the last years. Generally, the WTO's relevance for global trade has always depended on the willingness of WTO members to bring negotiations forward.

21 Daniel T. Shedd, Brandon J. Murrill, and Jane M. Smith, *Dispute Settlement in the World Trade Organization (WTO): An Overview*, CRS Report for Congress, Washington, D.C.: Congressional Research Service (CRS), 2012, https://www.fas.org/sgp/crs/misc/RS20088.pdf (accessed 8 December 2017).
22 David Palmeter, "The WTO As a Legal System", *Fordham International Law Journal* 24, no. 1 (2000): 444–80.
23 See WTO, *Annual Report 2016*, 102, https://www.wto.org/english/res_e/booksp_e/anrep_e/anrep16_chap6_e.pdf (accessed 8 December 2017).
24 ICTSD, "Overview of Outcomes of WTO's 10th Ministerial in Nairobi", BRIDGES Daily Updates, no. 5 (19 December 2015), http://www.ictsd.org/bridges-news/bridges/news/bridges-daily-update-5-overview-of-outcomes-of-wto%E2%80%99s-10th-ministerial-in (accessed 8 December 2017).

The WTO and Environmental Protection

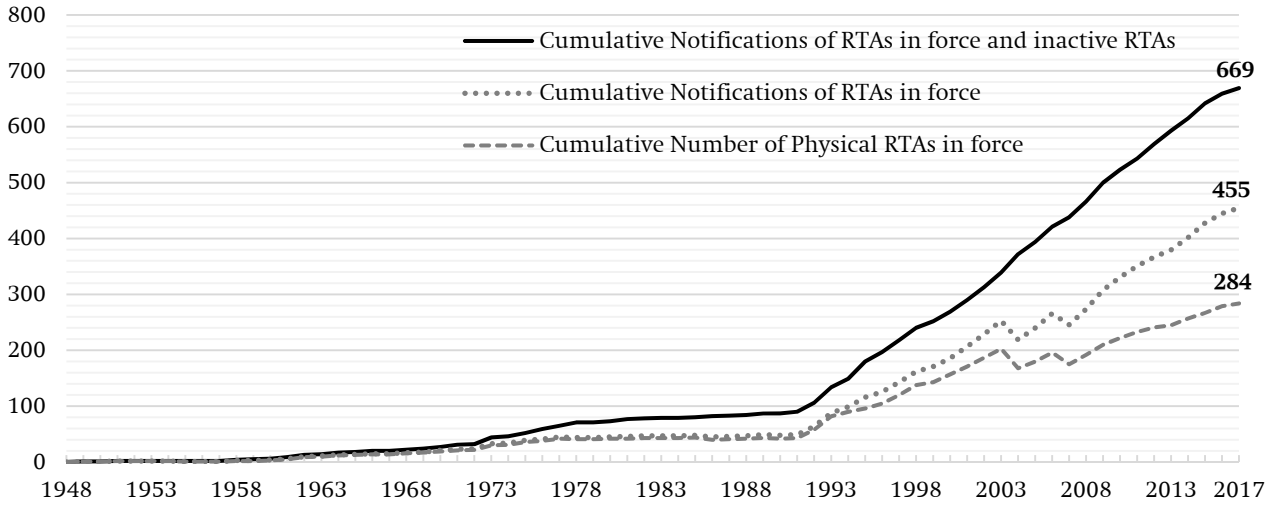
Environmental concerns are acknowledged in the preamble to the 1995 Agreement Establishing the WTO.[25] Together with the WTO, the Committee on Trade and Environment (CTE) was established, which elaborates the relationship between trade measures and environmental measures and is in charge of promoting sustainable development within the WTO. The CTE is open to all WTO members, with observers from intergovernmental organisations regularly participating, including the UNFCCC Secretariat. Although climate change hardly featured in WTO discussions until 2007, under the leadership of WTO Director-General Pascal Lamy (2005–2013), the organisation became actively involved in discussions on the climate and trade interface and published a joint report with the United Nations Environment Programme on the subject in 2009.[26] However, already since the 1990s, the interface between trade and the environment has come to the fore, primarily through GATT/WTO case law.

Regional Trade Agreements and Environmental Protection

Already during the Uruguay Round (1986–1994) of trade negotiations, many GATT members turned to regional or bilateral trade agreements (see Figure 2). The formation and strengthening of major trade blocs in the Americas (NAFTA and Mercado Común del Sur [MERCOSUR]) and European economic integration (European Communities; European Free Trade Association, EFTA) incentivised other countries to either join those agreements or to establish their own.[27] Against the backdrop of globalisation, RTAs were perceived to help enhance market access, promote

25 WTO, *Agreement on Establishing the WTO* (see note 17).
26 Ludivine Tamiotti, Robert Teh, Vesile Kulaçoğlu et al., *Trade and Climate Change. A Report by the United Nations Environment Programme and the World Trade Organization* (Geneva, Nairobi: UNEP, 2009).
27 Richard E. Baldwin, "The Causes of Regionalism", *The World Economy* 20, no. 7 (1997): 865–88.

Figure 2
Evolution of regional trade agreements in the world, 1948–2017



Source: WTO, Regional Trade Agreements Information System (RTA-IS), http://rtais.wto.org/UI/charts.aspx# (accessed 13 February 2018); own graph.

foreign policy objectives, and influence the policies of trading partners.[28] As a result, the number of RTAs has increased significantly in the last two decades, leading to a "spaghetti bowl" of trade agreements.[29] By February 2018, the WTO had received 669 notifications of RTAs, 455 of which were in force at that time, compared to 124 notifications to the GATT between 1948 and 1994 (see Figure 2).[30]

The WTO has to be notified of RTAs in accordance with Article XXIV GATT. In addition, under the WTO umbrella, there are two stand-alone plurilateral agreements, as well as plurilateral agreements that extend concessions to all WTO members on an MFN basis. The Environmental Goods Agreement (EGA), which is currently being negotiated,[31] falls into the latter category, meaning that the benefits of the agreement will apply to all WTO members once it is adopted.

In recent years, the discussion of regionalism in the trade context has taken a new turn with the emergence of mega-regional agreements.[32] Negotiations on the EU-Canada CETA were concluded in August 2014 and approved after intense political struggles in the EU in 2017. The TPP, which brings together Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the US, and Vietnam, was signed in February 2016. However, following the withdrawal of the US, the future of this mega-regional is uncertain, and first attempts are being made to revive the talks without the US.[33] The negotiations of TTIP

28 Theresa Carpenter, "A Historical Perspective on Regionalism", in *Multilateralizing Regionalism*, ed. Patrick Low and Richard E. Baldwin (Cambridge/New York: Cambridge University Press, 2009).
29 Jagdish Bhagwati, "Regionalism versus Multilateralism", *The World Economy* 15, no. 5 (1992): 535–56.
30 See WTO website: https://www.wto.org/english/tratop_e/region_e/regfac_e.htm (accessed 13 February 2018).
31 At the ministerial EGA talks in December 2016, no agreement could be reached on a final text. Some negotiators announced the next WTO ministerial conference in December 2017 as a deadline. See ICTSD, "Ministerial Talks to Clinch Environmental Goods Agreement Hit Stumbling Block", *BRIDGES* 20, no. 42 (2016), http://www.ictsd.org/bridges-news/bridges/news/ministerial-talks-to-clinch-environmental-goods-agreement-hit-stumbling. Some new momentum evolved mid-2017, see https://www.law360.com/articles/936873/wto-members-angling-to-relaunch-green-goods-talks (accessed 8 December 2017).
32 Mega-regionals have been defined as "deep integration partnerships in the form of RTAs between countries or regions with a major share of world trade and [foreign direct investment] and in which two or more of the parties are in a paramount driver position, or serve as hubs, in global value chains"; World Economic Forum, *Mega-regional Trade Agreements: Game-Changers or Costly Distractions for the World Trading System?* (Geneva: WEF, 2014), 13, http://www3.weforum.org/docs/GAC/2014/WEF_GAC_TradeFDI_MegaRegionalTradeAgreements_Report_2014.pdf (accessed 8 December 2017).
33 Cristian Rodriguez Chiffelle, "As Trump Ditches the TPP, What's Next for the World's Biggest Trade Deal?", *ICTSD*,

between the EU and the US were regarded as "frozen" after the election of US President Trump in 2016.[34] The negotiations for the Regional Comprehensive Economic Partnership (RCEP) involving 10 Association of Southeast Asian Nations (ASEAN) members, along with China, Japan, South Korea, India, Australia, and New Zealand, have also come to a halt.

Environmental provisions have become increasingly prevalent in RTAs. In 1993, NAFTA set the stage by including a side-agreement (the North American Agreement on Environmental Cooperation), with other US-RTAs following suit. The EU also has begun to incorporate environmental provisions in its RTAs with third countries since the mid-1990s. EU trade agreements with third countries are linked to an increasing number of multilateral environmental agreements, whereas US trade agreements have become more specific about the environmental action required, backed up by consultations and dispute-settlement procedures in the agreement.[35] The trend of including environmental provisions is continuing also in the negotiation of mega-regionals. Chapter 20 of the TPP and Chapter 24 of CETA are dedicated in their entirety to environmental issues, and a chapter on trade and sustainable development is the subject of the TTIP negotiations. Berger et al. (2017) looked into 48 RTAs of emerging economies for their environmental content, finding that these deals have become "greener" over time, in particular if the agreements involved countries from the Organisation for Economic Co-operation and Development (OECD).[36]

The Investment Rules in RTAs

Increasingly, RTAs incorporate investment rules. While under the WTO regime the Trade-Related Investment Measures (TRIMs) agreement prescribes how market access should be secured, RTAs also can include rules for investor-state dispute settlements. The latter regulate companies' rights to challenge the application of national regulations. Investor-state dispute settlement was a critical issue during the TTIP negotiations, for instance because big multilateral companies could use the agreement to sue a government asking for compensation on foregone profits. Investment issues that do not relate to market access are regulated by bilateral investment treaties and not in RTAs. National climate policy could easily come under scrutiny by investors once the regional agreements include such clauses.[37] The investigation of investment treaties, however, is beyond the scope of this paper.

14 December 2016, http://www.ictsd.org/opinion/as-trump-ditches-the-tpp-what (accessed 8 December 2017); Mai Nguyen, "Agreement in Meeting on TPP Trade Deal – Mexican Minister", *Reuters*, 9 November 2017, https://uk.reuters.com/article/uk-apec-summit-mexico/agreement-in-meeting-on-tpp-trade-deal-mexican-minister-idUKKBN1D925X (accessed 8 December 2017).

34 Philip Blenkinsop, "U.S. Trade Talks in Deep Freeze after Trump Win, Says EU", *Reuters*, 11 November 2016, http://www.reuters.com/article/us-usa-election-eu-trade-idUSKBN1361UN (accessed 8 December 2017).

35 Sikina Jinnah and Elisa Morgera, "Environmental Provisions in American and EU Free Trade Agreements. A Preliminary Comparison and Research Agenda", *Review of European, Comparative & International Environmental Law* 22, no. 3 (2013): 324–39.

36 Axel Berger et al., *Towards "Greening" Trade? Tracking Environmental Provisions in the Preferential Trade Agreements of Emerging Markets*, Discussion Paper (Bonn: Deutsches Institut für Entwicklungspolitik (DIE), 2017).

37 Nathalie Bernasconi-Osterwalder and Jörg Haas, "When Climate Leaders Protect Dirty Investments", *Project Syndicate*, 7 November 2017, https://www.project-syndicate.org/commentary/climate-trade-agreements-clean-energy-investment-by-nathalie-bernasconi-osterwalder-and-j-rg-haas-3-2017-11 (accessed 8 December 2017).

Identifying the Upcoming Issues for Trade and Climate Policy

Following the Paris Agreement, the climate regime is intended to progress through the coordination of national action, review, and adjustment over time. Climate policy decisions (targets, timelines, measures) are left with the parties to the Paris Agreement for the time being. National climate actions, which are being announced through the NDCs, can have trade implications that stem from market-based and non-market mechanisms (emissions trading, regulation), technology transfer rules and limitations, or from sectoral climate action for aviation and maritime transport, which are both outside the auspices of the Paris Agreement.

NDCs: Policy Measures with Trade Implications

In the run-up to Paris, many parties to the UNFCCC submitted their intended NDCs. Countries were free to announce their climate policy targets, measures, or conditionality, such as financial demands for adaptation and mitigation, as no particular formula applied to this new way of voluntary commitment. Trade implications from NDCs arise for all measures that tax, subsidise, or regulate national economic activities, and which relate directly or indirectly to other countries' participation in trade.

A first analysis shows that in 90 intended NDCs,[38] using international market mechanisms is indicated, whereas in 45 this tool is not mentioned at all. Mostly low-income countries intend to sell some type of mitigation unit to source carbon finance flows – provided such a trading option materialises under Article 6 of the Paris Agreement. However, there are currently only a small number of countries willing to buy such units (e.g. Japan, Norway, Switzerland, Turkey). Some countries have expressed their interest in using international market mechanisms in the future (29), whereas others have explicitly rejected them (18).[39]

The intended NDCs show that many countries plan to address emissions through investment in renewable energy. Some countries have laid out detailed policy intentions. Most parties have announced relative or absolute targets (e.g. India: wind power installation of 60 GW, solar power of 100 GW by 2022; China: increasing the share of non-fossil fuels to 15 per cent of energy consumption by 2020 and to 20 per cent by 2030; EU: 40 per cent greenhouse gas emission reductions by 2030, no details on energy targets).[40]

Given the high profile of the NDCs in the Paris Agreement, the national approaches could be increasingly exposed to scrutiny by trade partners, but they will also set the stage for an international exchange on policy practice.

"Cooperative Approaches" – a New Setting for International Policy Tools

The Kyoto Protocol introduced market-based, flexible mechanisms (Clean Development Mechanism (CDM), Joint Implementation (JI), and international emissions trading) for its parties to help them deliver emission

38 Out of a total of 163 INDC submissions at http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx (accessed 8 December 2017). The EU INDC counts as one submission (comprising 28 EU Member States). The total number of *parties* that submitted INDCs by March 2017 was 191.

39 Based on an analysis by Nicolas Kreibich, Wuppertal Institute, presented at 16th Climate Technology Workshop, 23–24 June 2016, Berlin; Nicolas Kreibich and Wolfgang Obergassel, *Carbon Markets after Paris. How to Account for the Transfer of Mitigation Results?*, JIKO Policy Paper no. 1/2016 (Wuppertal: Wuppertal Institute for Climate, Environment and Energy, January 2016). See also Clara Brandi, *Trade Elements in Countries' Climate Contributions under the Paris Agreement*, Issue Paper (Geneva: ICTSD, March 2017), http://www.ictsd.org/sites/default/files/research/trade_elements_in_countries_climate_contributions.pdf (accessed 8 December 2017).

40 See UNFCCC website: http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx (accessed 8 December 2017). For an analysis of NDCs with regard to trade, see Rana Elkahwagy, Vandana Gyanchandani, and Dario Piselli, *UNFCCC Nationally Determined Contributions: Climate Change and Trade*, Centre for Trade and Economic Integration (CTEI) Working Paper 2017-02 (Geneva: CTEI, Graduate Institute of International and Development Studies, 9 January 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2919692 (accessed 8 December 2017).

reductions in an economically efficient way. The Paris Agreement has broadened the scope for using such mechanisms on a voluntary basis, while at the same time leaving open the further design and implementation of these mechanisms. This has created uncertainty not only about the future of the CDM, but also about the new mechanisms and the future rules on verifying and the trading of yet-to-be defined emissions rights under the UNFCCC from 2020 onwards. Given that roughly half of all intended NDCs submitted to date are conditional upon access to international markets, the importance of these provisions cannot be overstated.[41] Despite the political divisions surrounding the concept of markets in the climate negotiations, parties expressly acknowledged the "important role of [...] tools such as [...] carbon pricing".[42]

Article 6 of the Paris Agreement (PA) identifies various concepts[43] for voluntary cooperative approaches – terminology that replaces the language of the Kyoto Protocol – to climate change mitigation. Two of these approaches enable the emergence of carbon markets across national jurisdictions. First, Articles 6.2 and 6.3 establish that cooperative approaches can result in "internationally transferred mitigation outcomes", such as linked emissions trading systems. Some elementary principles are set out in Articles 6.1 and 6.2, such as the need to ensure environmental integrity and transparency, robust accounting, and the avoidance of double counting. It is widely expected that guidance by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) – scheduled for adoption at COP 24 in December 2018 – will be limited to the creation of an accounting and transparency framework, whereas material criteria for the nature and stringency of carbon units will be defined at the domestic level.[44]

Second, Article 6.4 establishes a "mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development" (labelled by some as "sustainable development mechanism"). The negotiating history indicates that this mechanism would bear resemblance to a baseline-and-credit system such as the CDM under the Kyoto Protocol.[45] Unlike the broader scope of cooperative approaches (Articles 6.2 and 6.3 PA), the operation of a sustainable development mechanism will be governed by modalities and procedures currently under negotiation; it is likely to be subject to material and procedural control of the CMA and supervised by a body that has yet to be designated. Finally, yet importantly, Article 6 opens the way for specific coalitions among countries that use emissions trading and are considering coordinating actions and rules, or even linking their systems. This option is favoured, for instance, by the EU, which has recently agreed to link its Emissions Trading System (ETS) to that of Switzerland, and has expressed interest in other linkages.[46]

Among experts there are different views on whether emissions units would constitute goods under the GATT – or services under the GATS – with a majority of commentators concluding that they are neither.[47] By contrast, in-depth analyses are available for how regulations of national or supranational emissions trading systems, such as the inclusion of importers or free allocation rules, could contradict trade rules (see Section "National and Regional Carbon Pricing", p. 19). Greater agreement exists that services provided in the context of markets for different tradable climate-related units – for instance, greenhouse gas emission allowances, offset credits, or renewable energy and energy efficiency certificates in energy markets – fall under the GATS.[48]

41 Environmental Defense Fund (EDF) and International Emissions Trading Association (IETA), *Carbon Pricing. The Paris Agreement's Key Ingredient*, 2016, http://www.ieta.org/resources/Resources/Reports/Carbon_Pricing_The_Paris_Agreements_Key_Ingredient.pdf (accessed 8 December 2017).

42 UNFCCC, *Decision 1/CP.21*.

43 Voluntary cooperative approaches, internationally transferred mitigation outcomes, mechanisms that contribute to mitigation and support sustainable development, and non-market approaches. UNFCCC, *Paris Agreement*, Article 6.

44 Kazuhisa Koakutsu, "Cooperative Implementation of the Joint Crediting Mechanism (JCM) as an Example of Article 6.2 Activities", *Carbon Mechanisms Review*, no. 1 (2016), http://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/CMR_2016_01_Dawning_bf.pdf (accessed 8 December 2017).

45 Andrei Marcu, *Carbon Market Provisions in the Paris Agreement (Article 6)* (2016), 11–12, http://www.ceps-ech.eu/sites/default/files/SR%20No%20128%20ACM%20Post%20COP21%20Analysis%20of%20Article%206.pdf (accessed 8 December 2017).

46 See Sonja Hawkins and Ingrid Jegou, *Linking Emissions Trading Schemes: Considerations and Recommendations for a Joint EU-Korean Carbon Market*, Issue Paper no. 3/2014 (Geneva: ICTSD, 2014).

47 Jacob Werksman, "Greenhouse Gas Emissions Trading and the WTO", *Review of European Community and International Environmental Law* 8, no. 3 (1999); Steve Charnovitz, "Trade and Climate: Potential Conflicts and Synergies", in *Beyond Kyoto: Advancing the International Effort against Climate Change*, ed. Pew Center on Global Climate Change (2003), 141–70; Nat Keohane, Anna Petsonk, and Alex Hanafi, "Toward a Club of Carbon Markets", *Climatic Change* 144, no. 1 (2015): 81–95.

48 Marisa Martin, "Trade Law Implications of Restricting Participation in the European Union Emissions Trading Scheme",

These markets have seen robust growth, including the number of intermediaries (banks, brokers, exchanges, insurances, project developers, data providers, and verifiers). Still, there remains some uncertainty among scholars as to when exactly these services are covered by the GATS, and more specifically its Annex on Financial Services.[49] Driven by the private sector, some primary markets for units have also given rise to secondary markets for derivative products, which expressly fall within the scope of the Annex on Financial Services. Although some variability again exists between individual Schedules of Commitments, a majority of members will have committed to exercising non-discrimination subject to MFN, market access, and national treatment principles.[50]

More controversial and politically sensitive issues could arise if emissions trading or carbon pricing coalitions (often called "clubs")[51] emerge with rules that discriminate among WTO members, for instance by excluding trade with non-parties or excluding trade with parties based on the strength of respective emissions trading schemes (i.e. their environmental integrity). Environmental integrity has already been an issue for certain Kyoto Protocol units in the EU ETS, for which fungibility was restricted, based on their geographic origin (EU, 2009, Article 11a.4).[52] In that event, cooperative approaches could potentially come under the ambit of the trade regime, if the entire rationale is premised on the ability to exclude non-members from a club benefit.[53]

The Georgetown International Environmental Law Review 19, no. 3 (2007); James Munro, "Trade in Carbon Units As a Financial Service under International Trade Law: Recent Developments, Future Challenges", *Carbon & Climate Law Review* 8, no. 2 (2014): 437–74.

49 For an overview, cf. Munro, "Trade in Carbon Units", ibid.

50 A database providing members' commitments can be found at http://i-tip.wto.org/services/default.aspx (accessed 8 December 2017).

51 The Carbon Pricing Leadership Coalition is an initiative without any legal framework: https://www.carbonpricingleadership.org/leadership-coalition/ (accessed 8 December 2017).

52 See Christina Voigt, "WTO Law and International Emissions Trading: Is There Potential for Conflict?", *Carbon and Climate Law Review* 1, no. 2 (2008): 54–66. For such an interpretation of Article 6, see EDF and IETA, *Carbon Pricing* (see note 41), 5–6.

53 William Nordhaus, "Climate Clubs. Overcoming Free-riding in International Climate Policy", *American Economic Review* 105, no. 4 (2015): 1339–70.

Transfer of Climate-friendly Technologies

The need for technology transfer has been recognised in the climate regime (Article 4.5 UNFCCC, Article 10 PA). The Paris Agreement emphasises that the means of implementation (finance, technology, and capacity building) have to be provided by the industrialised countries to developing countries. However, the agreement does not prescribe how the transfer of climate-friendly technologies should be conducted, or how intellectual property rights (IPRs) should be handled.[54] This is left to further negotiations, inter alia under the auspices of the Paris Agreement, under the WTO (including the TRIPS Agreement), and the talks on the EGA. Although a Technology Mechanism was established at UNFCCC talks in Cancún in 2010, the thorny issue of IPRs has remained unaddressed.[55]

The TRIPS Agreement rules (see Table , p. 23) do not resolve the longstanding dispute over the strength and enforcement of IPRs or on the definition of technologies per se.[56] The most important IPR issue in the climate context are patents, but other IPR tools are relevant too (e.g. trademarks, plant variety rights, certification marks).[57] This debate was also taken up in

54 On the history of IPR protection, see Padmashree Gehl Sampath and Pedro Roffe, *Unpacking the International Technology Transfer Debate: Fifty Years and Beyond*, Working Paper (2012), http://www.ictsd.org/downloads/2012/07/unpacking-the-international-technology-transfer-debate-fifty-years-and-beyond.pdf (accessed 8 December 2017).

55 Ahmed Abdel Latif, Keith Maskus, Ruth Okediji et al., *Overcoming the Impasse on Intellectual Property and Climate Change at the UNFCCC: A Way Forward*, Policy Brief no. 11/2011 (Geneva: ICTSD, 2014), http://www.ictsd.org/sites/default/files/research/2012/02/overcoming-the-impasse-on-intellectual-property-and-climate-change-at-the-unfccc-a-way-forward.pdf (accessed 8 December 2017).

56 David G. Ockwell, *Intellectual Property Rights and Low Carbon Technology Transfer to Developing Countries – A Review of the Evidence to Date*, 2008, https://www.sussex.ac.uk/webteam/gateway/file.php?name=spru-teri-ids-phase-2-iprs-and-low-c-tt-final.pdf&site=264 (accessed 8 December 2017); Peter K. Yu, "Intellectual Property Enforcement and Global Climate Change", in *Research Handbook on Intellectual Property and Climate Change*, ed. Joshua D. Sarnoff (Cheltenham, UK, and Northampton, MA: Edward Elgar, 2016), 107–25. In 2010, the WTO provided an overview for policy-makers, identifying the relevant standards of the TRIPS agreement for climate negotiations. WTO, *The WTO TRIPS Agreement – A Practical Overview for Climate Change Policy Makers* (Geneva: WTO, 2010), https://www.wto.org/english/tratop_e/trips_e/trips_and_climate_paper_e.pdf (accessed 8 December 2017).

57 Scott Barrett, "Rethinking Global Climate Change Governance", *Economics: The Open-Access, Open-Assessment E-Journal* 3, no. 5 (2009).

the WTO CTE when, in 2011, China and India made a joint submission, claiming that IPRs must not become a barrier for the transfer of environmentally sound technologies, which was supported by Ecuador in 2013.[58] Thus, protection of IPRs for climate-friendly technologies will remain on the list of negotiations and requires closer cooperation among the trade partners under the Paris Agreement and the WTO.

Global Sectoral Policies: Aviation and Maritime Transport

Aviation and maritime shipping have been largely excluded from the climate regime. They were subject to UNFCCC negotiations, but the Paris Agreement does not mention them. Instead, and following Article 2.2 of the Kyoto Protocol, negotiations on regulating emissions from international aviation and marine bunker fuels take place under the auspices of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO). As neither of the agencies initially demonstrated material progress, the EU announced in 2012 that it would include international aviation in its ETS from 2013 onwards. This unilateral action against globally operating sectors led to significant tensions,[59] and the EU suspended its measure under international pressure. However, this arguably helped revive the negotiations under the ICAO and the IMO. Both organisations struggle with discord about the necessity, design, and economic consequences of measures to limit aviation and shipping emissions; strong pressure from industry groups; as well as asymmetrical interests of coalitions of states. At its 39th Session in 2016, the ICAO Assembly adopted an international market-based measure to limit aviation emissions designated the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).[60] Under this scheme, any growth in CO_2 emissions from international aviation above 2020 levels will have to be compensated through the purchase and surrender of emission offsets. During an initial pilot phase from 2021 to 2023 and the first implementation phase from 2024 to 2026, the scheme will only apply to airlines from states voluntarily opting to participate in CORSIA. Starting with the second phase from 2027 to 2035, exceptions will apply only for least developed countries, land-locked developing countries, small island developing states, and countries with low levels of aviation activity.

The IMO, however, does not have a strategy on reducing shipping emissions yet. During the talks in December 2016, the members agreed to adopt an initial carbon-cutting strategy in 2018 and a final one in 2023.[61]

The role of the trade regime is limited here, too. The GATS offers little guidance in two annexes on air and maritime transport services. Under the "Annex on Air Transport Services", aviation is generally excluded from the substantive scope of the GATS, with some minor exceptions. For shipping, the corresponding "Annex on Negotiations on Maritime Transport Services" states that MFN treatment only applies following the conclusion of additional negotiations on maritime transport services within the WTO. The Council for Trade in Services suspended the maritime transport negotiations until the commencement of the next comprehensive round of services negotiations, which are still ongoing.[62]

ICAO's CORSIA scheme will not supersede any existing treaty-based trade commitments between ICAO members under the legal principle of *lex posterior derogat legi priori*. Still, the outcome and consensus it reflects can have a significant bearing on the interpretation of Article XX GATT when defending trade-restrictive climate measures, especially where these apply to the transport sector and international spaces.

58 See the Third World Network website: http://www.twn.my/title2/climate/info.service/2013/climate130602.htm (accessed 8 December 2017).

59 Susanne Dröge and Philipp M. Richter, *Emissionshandel für den Luftverkehr. Internationaler Widerstand gegen den Alleingang der EU*, SWP Comments 55/2012 (Berlin: Stiftung Wissenschaft und Politik, September 2012).

60 International Civil Aviation Organization (ICAO), *Draft Text for the Report on Agenda Item 22* (Montreal: ICAO, 2016), see http://www.icao.int/Meetings/a39/Documents/WP/wp_462_en.pdf (accessed 8 December 2017). For a general discussion, see Alejandro Piera, "Compliance Tools for a Global Market Based Measure for Aviation. Designing the Legal Form of a Global Aviation Market Based Measure", *Carbon & Climate Law Review*, no. 2 (2016): 144–52.

61 Ed King, "Mayday, Mayday: UN's Shipping Body Needs a Climate Compass", *Climate Home* (31 October 2016), http://www.climatechangenews.com/2016/10/31/mayday-mayday-uns-shipping-body-needs-a-climate-compass/ (accessed 8 December 2017).

62 WTO, *Decision on Maritime Transport Services, Adopted by the Council for Trade in Services on 28 June 1996*, WTO Doc. S/L/24 of 3 July 1996; see WTO website: https://www.wto.org/english/tratop_e/serv_e/18-mar_e.htm (accessed 8 December 2017).

National and Regional Carbon Pricing: Emissions Trading and Carbon Taxes

Under the Paris Agreement, parties will implement mitigation policies at the national level. The application of carbon pricing (CO_2 taxes, emissions trading schemes) in industrialised and emerging economies affects energy prices and industries' competitiveness, while it also induces technological innovation.[63] Because the producers who face carbon costs often operate in international markets, additional costs could induce carbon leakage, which is an undesired side-effect from an uncoordinated carbon pricing policy. Emissions increase outside the country that implements carbon pricing – this is mainly due to the partial or full production relocation of firms to other countries without carbon costs. Carbon leakage puts into question the environmental effectiveness of unilateral carbon pricing or regulation. However, trade policy can play a crucial role in preventing carbon leakage, making carbon pricing a critical issue for the trade-and-climate policy connection.

If imported goods also fell under the importing countries' carbon pricing policies (tax or emissions allowances coverage), this could prevent carbon leakage. Policies implemented to this end are collectively referred to as "border carbon adjustments" (BCAs). They can work both ways (pricing imports and reimbursing exports), and resemble border tax adjustments, which are commonly applied for consumption taxes (such as value added tax).[64] The introduction of a BCA has been explored in the EU[65] and in the US (e.g. in the unsuccessful American Clean Energy and Security Act of 2010, or the proposed American Opportunity Carbon Fee Act of 2014).[66] Behind the border, the policy design could include free allowance allocation, tax exemptions or other payments that compensate for cost increases for companies which compete internationally.

The discussion on trade measures that complement national climate policy has gained traction in 2017. The risk, however, is that these measures would serve purely protectionist or retaliatory purposes. Policymakers who consider BCAs as a tool for inclusion in their portfolios would have two basic routes for the design of such measures. One option is to establish a BCA along the requirements of Article III GATT for domestic policy tools, following several criteria under Article II.2(a), which apply to a legal border tax adjustment. The second option is to design a BCA in such a way that it passes the tests of Article XX GATT to qualify for an exception.[67] Because there is considerable uncertainty under existing WTO jurisprudence, this is adding to the question of WTO legality of BCAs, but also to the general question of their desirability.[68] Most importantly, any BCA must not serve to protect domestic industries.[69] Thus, a BCA, has to target carbon leakage reduction and refer to the carbon content of a traded good.

The free allocation of allowances to companies and the indirect or direct payments to compensate for car-

63 See, for instance, Joost Pauwelyn, *U.S. Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law*, Working Paper 07-02 (Durham: Duke University, The Nicholas Institute, 2007), https://nicholasinstitute.duke.edu/sites/default/files/publications/u.s.-federal-climate-policy-and-competitiveness-concerns-the-limits-and-options-of-international-trade-law-paper.pdf; Susanne Dröge, *Tackling Leakage in a World of Unequal Carbon Prices* (London: Climate Strategies, 2009), http://www2.centre-cired.fr/IMG/pdf/cs_tackling_leakage_report_final.pdf (accessed 8 December 2017); Christoph Böhringer, Edward J. Balistreri, and Thomas F. Rutherford, "The Role of Border Carbon Adjustment in Unilateral Climate Policy. Overview of an Energy Modeling Forum Study (EMF 29)", *Energy Economics* 34 (2012): 97–110.

64 Aaron Cosbey, *The Trade Implications of the Paris COP21 Agreement*, International Trade Working Paper 17/2016 (London: Commonwealth Secretariat, 2016); Aaron Cosbey, Susanne Droege, Carolyn Fischer et al., *A Guide for the Concerned: Guidance on the Elaboration and Implementation of Border Carbon Adjustment*, Policy Report 3 (Winnipeg: IISD, 2012), http://www.iisd.org/pdf/2012/bca_guidance.pdf.

65 Lorand Bartels, "The WTO Legality of the Application of the EU's Emission Trading System to Aviation", *European Journal of International Law* 23, no. 2 (2012); cf. Dröge and Richter, *Emissionshandel für den Luftverkehr. Internationaler Widerstand gegen den Alleingang der EU* (see note 59); Roland Ismer and Karsten Neuhoff, "Border Tax Adjustment. A Feasible Way to Support Stringent Emission Trading", *European Journal of Law and Economics* 24, no. 2 (2007): 137–64.

66 Harro van Asselt and Thomas Brewer, "Addressing Competitiveness and Leakage Concerns in Climate Policy. An Analysis of Border Adjustment Measures in the US and the EU", *Energy Policy* 38, no. 1 (2010): 42–51; Sam Kortum and David Weisbach, *Border Adjustments for Carbon Emissions. Basic Concepts and Design*, Discussion Paper 9/2016 (Washington, D.C.: Resources for the Future, 2016); cf. Pauwelyn, *U.S. Federal Climate Policy and Competitiveness Concerns* (see note 63); Ismer and Neuhoff, "Border Tax Adjustment" (see note 65).

67 Cosbey, Droege, Fischer et al., *A Guide for the Concerned* (see note 64).

68 Kasturi Das, "Climate Clubs: Carrots, Sticks and More", *Economic & Political Weekly* 50, no. 34 (2015).

69 Ludivine Tamiotti, "The Legal Interface between Carbon Corder Measures and Trade Rules", *Climate Policy* 11, no. 5 (2011): 1209; cf. Tamiotti, Teh, Kulaçoğlu et al., *Trade and Climate Change* (see note 26).

bon costs could be problematic from a trade policy point of view, too, especially if they tend to overcompensate for the actual cost impact. Then the policy may result in subsidisation and could be challenged under the SCM Agreement. Although this situation is speculative, it has a strong link to the disputes over subsidies for renewable energy.

Energy Subsidies

Subsidies play an important role in implementing the Paris Agreement in two ways. They help foster renewable energy investments and production on the one hand, and, on the other hand, abolishing the subsidies for fossil fuels reduces the production and consumption levels of carbon-intensive fuels. The International Energy Agency finds that consumption subsidies were responsible for 13 per cent of global carbon dioxide emissions in 2014, with the implicit subsidy amounting to $115 per tonne of CO_2, on average.[70] As energy can be seen as both a good and a service, it is governed by different WTO rules, including – but not limited to – the SCM Agreement.

Subsidy rules, in theory, also apply to fossil fuel subsidies. In practice, however, their application has proven difficult. In contrast to renewable energy support, no fossil fuel subsidy has ever been challenged by a WTO member. For consumer subsidies, a key challenge is to prove that such subsidies are "specific", given that the benefits of such subsidies generally accrue to a broad group of producers and/or consumers.[71] More importantly, however, notification rates of subsidies have generally been low due to a lack of commitment, a lack of clarity about which subsidies need to be reported, and the inherent difficulties of estimating them.[72] Even if WTO members do report subsidies, the surveillance mechanism rarely leads to the questioning of the subsidies.[73]

70 International Energy Agency (IEA), *World Energy Outlook Special Report: Energy and Climate Change* (Paris: IEA, 2015), https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf (accessed 8 December 2017).

71 Henok Birhanu Asmelash, "Energy Subsidies and WTO Dispute Settlement. Why Only Renewable Energy Subsidies Are Challenged?", Journal of International Economic Law 18, no. 2 (2015): 261–85.

72 Liesbeth Casier, Robin Fraser, Mark Halle et al., "Shining a Light on Fossil Fuel Subsidies at the WTO. How NGOs Can Contribute to WTO Notification and Surveillance", *World Trade Review* 13, no. 4 (2014): 603–32.

73 Ronald Steenblik and Juan Simón, *A New Template for Notifying Subsidies to the WTO* (Winnipeg: IISD, 2011).

WTO Provisions and Disputes That Matter for the Upcoming National Climate Policy Challenges

The climate policies that the Paris Agreement brings about for the EU and other national governments will increase the role of trade rules under the WTO as well as plurilateral and regional trade agreements. In order to understand the role of the GATT/WTO rules for the implementation of climate measures, we take a look at them and at the components of the WTO regime. Frequently, the argument is made that the support of climate policies through the application of trade tools or measures that relate indirectly to trade is not in line with WTO rules. Another argument is that the design of such measures along the demands of the WTO regime could be too complex. However, already today, the WTO dispute settlement system is concerned with a rising number of cases that relate to energy policies which aim at reducing emissions. This indicates that more expert capacity for – and knowledge about – mutual support or conflict will be needed.

The GATT Rules and Climate Policy

The trade rules under the WTO are based on the principles of transparency, predictability, and stability.[74] Their purpose is to reduce transaction costs for the WTO members and to provide a basis for applying trade measures among them. **Article I GATT** sets up the MFN obligation, which also creates a multiplier effect for bilateral talks: If one member agrees on a lower tariff with a trade partner, these tariffs will apply automatically to all other WTO members. Thus, discrimination among WTO members requires a specific justification, as non-discrimination is key. It is also incorporated in **Article III GATT** (the national treatment obligation), which demands that imported products should be treated on par with "like" domestically produced goods. In particular, **Article II.2 (a) GATT** allows a WTO member to impose a charge on an imported product that is equivalent to an internal tax that the member concerned has imposed on "like" domestic products, or on an article from which the imported product has been produced in whole or in part. However, it also needs to be guaranteed that such a border tax adjustment abides by the national treatment requirements (Article III.2 GATT), which ensure that imported products are not discriminated against when compared to "like" domestic products.

The non-discrimination among WTO members and among traded goods and domestically produced "like" products poses a big challenge for climate policy-making. The "likeness" of products as understood – though not defined – under the WTO regime is a key element of addressing emissions, as emissions are often part of the production process and cannot be found in the physical characteristics of a traded good. For example, high levels of emissions during the production of steel fall in the category of non-product-related processes and production methods (PPMs), and thus shall not be regarded as a cause to discriminate against traded steel products at the border. From a climate policy perspective, however, differentiation between imports or exports based on their non-product-related PPMs (i.e. their "embedded carbon") could be regarded as necessary for an effective national mitigation policy, but this would need justification under the WTO rules.[75] The legality of BCAs or carbon taxes applied to imported goods hinges to a large extent on this particular point.

Articles VI and XVI GATT provide the basic principles on subsidies and countervailing duties (CVD) in the GATT/WTO system, whereas the SCM Agreement is an implementation agreement (see also subsection below). Article XVI GATT contains general provisions against subsidies that expand the exporting of primary products or lower the export prices of other products below those prevailing in the domestic market. Article VI GATT provides for the imposition of CVDs to offset subsidies granted, directly or indirectly, on the manufacture, production, or export of any merchandise. To impose a CVD, however, injury or threat of injury to an established industry must be determined. Alterna-

74 Van Asselt, *Fragmentation of Global Climate Governance* (see note 12), 161.

75 Pauwelyn, *U.S. Federal Climate Policy and Competitiveness Concerns* (see note 63); Joost Pauwelyn, "Carbon Leakage Measures and Border Tax Adjustments under WTO Law", in *Research Handbook on Environment, Health and the WTO*, ed. Geert van Calster and Denise Prévost (Cheltenham, UK: Edward Elgar, 2013).

tively, the subsidy must be shown to retard the establishment of an equivalent domestic industry.[76]

An important set of exemptions is made in **Article XX GATT**. Article XX is a key clause for the discussion on how climate policy measures can be justified under – and supported by – the international trade regime. It opens the way for policy measures that are deemed necessary to follow, other than purely trade-centred ambitions. Non-discrimination, for instance, can be suspended, provided that certain conditions are met. Two of these exceptions relate to environmental concerns: if discrimination is "necessary to protect human, animal, or plant life or health" (Article XX [b]) or if it relates to "the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production and consumption" (Article XX [g]). For all exceptions, the conditions stipulated in the introductory part (chapeau) of Article XX need to be met. Any measure thus has to pass the test of "arbitrary or unjustifiable discrimination" or disguised trade restrictiveness.[77]

Other WTO Agreements and Their Relevance for Climate-and-Trade Policy Interactions

In addition to the GATT, a set of other WTO agreements are relevant for the interactions between climate and trade policy, as they regulate specific aspects of trade in goods (e.g. property rights or standards) or in services. Seven of them are of particular relevance to climate policy. We give an overview in the Table on p. 23.

Examples of EU and US WTO Disputes with Climate Policy Relevance

Over time, exporting countries have challenged various environmental requirements of importing countries on the grounds that they constitute protectionism, and that the importing country is exercising an unacceptable form of regulation in areas beyond its national jurisdiction. Asian countries, for example India, Malaysia, Pakistan, and Thailand, were protesting that the US was interfering in internal affairs when the US banned shrimp imports from these countries which were caught without turtle-excluding devices – killing endangered sea turtles as by-catch. The WTO Appellate Body, which eventually ruled on the US fishing standards contested in the 1990 *Tuna/Dolphin*[78] and the 1996 *Shrimp/Turtle*[79] cases, moved the debate into a new direction, as it found that the US had the right to protect the global resource (e.g. migrating turtles) with its trade measure. The negative economic effects on the exporting countries were also part of the discussion about non-product-related PPMs, as PPMs can create financial and technological burdens for developing countries' producers.[80]

Climate-related disputes are still a small proportion of the total number of disputes initiated under the WTO's dispute settlement system. The latest cases can be linked to national climate policy targets and demonstrate a growing tension between trade rules and national renewable energy laws and policies. In addition, anti-dumping measures have increased, thereby involving allegations related to unfair subsidies, the use of specific requirements concerning the share of locally produced inputs (local content requirements, LCRs), and/or the calculations of CVDs. Energy-policy-related WTO disputes have emerged since 2010 – illustrating this trend[81] – and involved the EU, the US, Canada, China, Japan, India, and others. Subject to the disputes are trade in solar cells, solar panels, or modules; trade in wind power equipment; and national support for suppliers of solar and wind equipment through LCRs and through subsidies, which have led to allegations of dumping.

76 Arvind Panagariya, *Core WTO Agreements: Trade in Goods and Services and Intellectual Property* (New York, NY: Columbia University, 2002), http://www.columbia.edu/~ap2231/Courses/wto-overview.pdf.
77 Cosbey, Droege, Fischer et al., *A Guide for the Concerned* (see note 64).
78 GATT, *United States – Restrictions on Import of Tuna* (Geneva: WTO, 1990), see https://www.wto.org/gatt_docs/English/SULPDF/91530924.pdf; WTO DS381, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products* (Geneva: WTO, 2008), see: https://www.wto.org/english/tratop_e/dispu_e/381r_e.pdf (accessed 8 December 2017).
79 WTO DS58, *United States – Import Prohibition of Certain Shrimp and Shrimp Products*, (Geneva: WTO, 1996), see https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds58_e.htm; WTO, *United States – Import Prohibition of Certain Shrimp and Shrimp Products* (Geneva: WTO, 1996), see https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds61_e.htm (accessed 8 December 2017).
80 Rafael Leal-Arcas, "Unilateral Trade-related Climate Change Measure", The Journal of World Investment & Trade 13, no. 6 (2012): 875–927; cf. Cosbey, Droege, Fischer et al., *A Guide for the Concerned* (see note 64).
81 For detailed information on the cases, see Susanne Droege et al., *The Trade System and Climate Action: Ways Forward under the Paris Agreement*, Working Paper (London: Climate Strategies, October 2016), Annex "Climate-related WTO disputes", 52 ff.

Table
WTO agreements that are relevant for national climate policy action

GATS **General Agreement on Trade in Services**	*Scope of agreement and purpose:* Any service in any sector except those supplied in the exercise of governmental authority.
Approach	▸ Schedules of Commitments. A positive list of services that members want to liberalise.
Basic Principle(s)	▸ Art. II.1 GATS: Most Favoured Nation Principle
Relevance	▸ If climate policy measures affect trade in service sectors that are listed in the GATS. ▸ Environmental services are being discussed at the Special Session of the Committee on Trade in Services.[a]
TRIMs **Agreement on Trade-Related Investment Measures**	*Scope of agreement and purpose:* Investment measures related to trade in goods only, coverage limited to prohibition of TRIMs inconsistent with Art. III (national treatment) or Art. XI (general elimination of quantitative restrictions) GATT.[b]
Approach	▸ Non-exhaustive, illustrative list of inconsistent measures; most-prominent one are local content requirements (LCRs).
Basic Principle(s)	▸ Art. III GATT (national treatment); Art. XI GATT (general elimination of quantitative restrictions). Transparency in domestic rules and discrimination for investing.
Relevance	▸ The TRIMs Agreement is one of the most cited WTO agreements in disputes relating to LCRs pertaining to renewable energy policies (see Sections “Cooperative Approaches”, p. 15, and “Examples of EU and US WTO Disputes”, p. 22). Some NDCs address national employment and industrial policy strategies (investments in new energy).
TRIPS **Agreement on Trade-Related Aspects of Intellectual Property Rights**	*Scope of agreement and purpose:* IPRs that relate to traded products.
Approach	▸ Provides a “minimum” standard for domestic intellectual property laws of WTO members.[c]
Basic Principle(s)	▸ Art. 8 TRIPS: Members’ rights to adopt TRIPS Agreement-consistent measures to protect, inter alia, not only public health and nutrition but also the public interest in sectors of vital importance to their socio-economic and technological development.
Relevance	▸ TRIPS strengthens the position of developers of climate-friendly technologies, but also demands a better dissemination via technology transfer. The role of the TRIPS Agreement is still not settled, given an ongoing debate on what constitutes technology transfer.[d]

a See WTO, *Environmental Services – Overview of Classification Issues, Informal Note by the Secretariat*, JOB/SERV/84t (31 August 2011); Joachim Monkelbaan, *Trade in Sustainable Energy Services* (Geneva: ICTSD, 2013), 7–8, http://www.ictsd.org/downloads/2013/10/trade-in-sustainble-energy-services.pdf (accessed 8 December 2017).
b See Article 2.1 TRIMs agreement. See WTO website: https://www.wto.org/english/tratop_e/invest_e/invest_info_e.htm (accessed 8 December 2017); David A. Ganz and Padideh Ala’i, “Climate Change Innovation, Products and Services under the GATT/WTO System”, in *Research Handbook on Intellectual Property and Climate Change*, ed. Joshua D. Sarnoff (Cheltenham, UK, and Northampton, MA: Edward Elgar, 2016), 290.
c Yu, “Intellectual Property Enforcement and Global Climate Change” (see note 56).
d Ibid.

Table
WTO agreements that are relevant for national climate policy action (cont.)

TBT	*Scope of agreement and purpose:*
Agreement on Technical Barriers to Trade	Focus on non-discrimination rules, more specific than GATT provisions; aims at creating a predictable trading environment.
Approach	▸ Establishes features specific to the preparation and application of regulatory measures that affect the trade in goods. If a measure sets out procedures that require the fulfilment of *technical regulations* or *standards* (testing, inspections, and certification), then this falls under conformity assessment procedures under the TBT Agreement.[e]
Basic Principle(s)	▸ Non-discrimination following Art. III GATT.
Relevance	▸ Climate-related rules, guidelines, or characteristics of products or related production methods with which compliance is voluntary, are *standards* under the TBT Agreement. Mandatory climate regulations are *technical regulations*. TBT committee is a very active forum, in which WTO members exchange details about their national policies on standards, e.g. efficiency standards.
SCM	*Scope of agreement and purpose:*
Agreement on Subsidies and Countervailing Measures	Adds precision to Art. XVI GATT. Limiting use of subsidies by WTO members.
Approach	▸ Defines subsidies and disciplines on countervailing duties.
Basic Principle(s)	▸ Art. XVI GATT: Benefit needs to be conferred through any of the transfer options listed, categorisation of subsidies: prohibited or actionable.
Relevance	▸ Climate policies may include subsidies for low-carbon energy; subsidies provided to fossil fuels lead to greenhouse gas emissions.
Anti-Dumping Agreement	*Scope of agreement and purpose:* Clarification and expansion of Art. VI GATT for the WTO members.
Approach	▸ WTO member has to submit proof that dumping is taking place, calculate the extent of dumping and show that the dumping is causing injury or threatening to do so. Allows for charging extra import duties on the particular product from the particular exporting country to bring its price closer to the "normal value", or to remove the injury to domestic industry in the importing country.[f]
Basic Principle(s)	▸ Members can act against dumping where there is genuine ("material") injury to the competing domestic industry.
Relevance	▸ Anti-dumping actions are applied to a number of renewable energy products, in particular solar cells and panels.[g]

e WTO, *Technical Barriers to Trade*, The WTO Agreement Series (Geneva: WTO, 2014), 13. https://www.wto.org/english/res_e/publications_e/tbttotrade_e.pdf (accessed 8 December 2017).
f See WTO website: https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm8_e.htm (accessed 8 December 2017).
g The anti-dumping claims by the EU in 2013 against China were valid according to the WTO DSB, and protection of EU producers was allowed for a two-year-period; European Commission, *The European Union's Measures against Dumped and Subsidised Imports of Solar Panels from China* (2016), http://trade.ec.europa.eu/ doclib/docs/2015/july/tradoc_153587.pdf (accessed 8 December 2017).

Japan (2010) and the EU (2011) initiated cases against the province of Ontario's feed-in tariff (FIT) programme, which includes LCRs. The Japanese claim was that the programme's LCRs discriminated against foreign renewable energy products, placing Canada in violation of the national treatment requirements of the GATT and the TRIMs Agreement, and constituting a prohibited subsidy under the SCM Agreement (see Table). Canada argued that the measure was not subject to the WTO agreements cited because its FIT was a form of government procurement, to which the national treatment obligation did not apply.[82] The WTO panels acknowledged most of the claims by Japan and the EU, but they were divided on the subsidy issue. Canada appealed the decisions. The Appellate Body in May 2013 held that Ontario's FIT programme violated the national treatment obligation under the GATT and the TRIMs Agreement, though it disagreed on the subsidy determination. As a result, Canada had to bring its programmes into compliance, which it did by mid-2014.

Another example is from 2012, when China requested WTO consultations with the EU, Greece, and Italy on various feed-in tariff programmes in support of solar energy generation that allegedly contained LCRs. China claimed that the measures were inconsistent with the GATT as well as the SCM and TRIMs agreements (see Table). The EU accepted the request for consultations,[83] which are still pending.

Moreover, the EU faces four WTO disputes around the biodiesel anti-dumping duties it imposed, three of them filed by Argentina and one by Indonesia.[84] The main aspects of these four cases are the favouring of biodiesels produced in the EU by Spain; measures on importing and marketing of biodiesel; the support of the biodiesel industry in Belgium, France, Italy, Poland, and Spain; and anti-dumping measures within the EU. The dispute on the favouring of biodiesels produced in the EU by Spain was put on hold after Spain announced it would modify the biofuel rule.[85] The other disputes on biodiesel are still pending.

Also, the US has actively called on the WTO system for rulings on national energy policy approaches. The US has accused China of supporting renewables equipment in a trade-distorting way on several occasions and brought this to WTO dispute settlement bodies in 2010. The consultations that followed led to a revocation of the subsidy in 2011 by China.[86] Seemingly in retaliation, China complained about US investigations into China's pricing practices for solar panels and wind towers.[87] In July 2014, a WTO panel found the practices of the US on the calculations of CVDs to be in violation of certain provisions of the SCM Agreement. The panel recommended that the US government bring its measures into conformity. Because both China and the US filed appeals on certain legal questions, the Appellate Body had to take up the case. Its report was adopted, with recommendations being made to bring the US measure(s) into conformity with WTO law.

Indian energy policy has also been challenged by the US. The US filed a complaint against Indian LCR provisions pertaining to solar cells and/or modules.[88] A WTO panel was established in May 2014, and for several months India tried through bilaterally measures to persuade the US to withdraw the case. In its report on the matter, released in February 2016, the panel found that the LCRs introduced as part of the Jawaharlal Nehru National Solar Mission (JNNSM) constituted trade-related investment measures, thus

82 Joanna I. Lewis, "The Rise of Renewable Energy Protectionism: Emerging Trade Conflicts and Implications for Low Carbon Development", *Global Environmental Politics* 14, no. 4 (2014): 10–35.

83 European Commission, *General Overview of Active WTO Dispute Settlement Cases Involving the EU As Complainant or Defendant and of Active Cases under the Trade Barriers Regulation* (2013), http://trade.ec.europa.eu/doclib/docs/2007/may/tradoc_134652.pdf.

84 Notably, Argentina and Indonesia together make up 90 per cent of the EU's biodiesel imports and capture more than one-fifth of the bloc's market share; ICTSD, "WTO Panel to Examine EU Duties on Argentine Biodiesel", *BIORES* 18, no. 15 (2014), http://www.ictsd.org/bridges-news/bridges/news/wto-panel-to-examine-eu-duties-on-argentine-biodiesel.

85 ICTSD, "EU, Argentina File Appeals in Biodiesel WTO Dispute", *BRIDGES* 20, no. 20 (2 June 2016), http://www.ictsd.org/bridges-news/bridges/news/eu-argentina-file-appeals-in-biodiesel-wto-dispute.

86 ICTSD, "US Proclaims Victory in Wind Power Case; China Ends Challenged Subsidies", *BRIDGES* 15, no. 25 (2011), http://www.ictsd.org/bridges-news/bridges/news/us-proclaims-victory-in-wind-power-case-china-ends-challenged-subsidies (accessed 8 December 2017).

87 ICTSD, "US Probe into China, Vietnam Wind Tower Imports Moves Forward", *BRIDGES* 16, no. 6 (2012), http://www.ictsd.org/bridges-news/bridges/news/us-probe-into-china-vietnam-wind-tower-imports-moves-forward (accessed 8 December 2017).

88 The Jawaharlal Nehru National Solar Mission (JNNSM) started in January 2010, as one of the eight national missions identified in India's National Action Plan on Climate Change 2008, aiming at generating 100,000 megawatts of grid-connected solar power capacity by 2022. See Government of India, *Resolution: Jawaharlal Nehru National Solar Mission*, 11 January 2010, http://www.mnre.gov.in/solar-mission/jnnsm/resolution-2/ (accessed 8 December 2017).

violating the national treatment obligation under the TRIMs Agreement and the GATT.[89] The panel emphasised that the legitimacy of the policy objectives pursued through the JNNSM was not under dispute.[90] In April 2016, India appealed the case on certain legal aspects of the panel's findings. On 16 September 2016, the Appellate Body ruled against India.[91] Meanwhile, India has lodged another WTO challenge against alleged LCRs and subsidies being imposed by eight US states.[92]

Climate-related Provisions in Regional Trade Agreements

In RTAs, three types of environmental and climate provisions exist.[93] A first type are general environmental provisions that do not mention climate change but are applicable nevertheless. They include references to the environment, references to principles (notably the principle of common but differentiated responsibilities), and provisions stipulating that parties need to ensure a high level of environmental protection or that parties must uphold, improve, and enforce environmental laws.

In addition, to the extent that references to multilateral environmental agreements are not specified, any reference that specifies the relationship between an RTA and such agreements could be seen to include also the climate treaties (UNFCCC, Kyoto Protocol, Paris Agreement). The general environmental provisions also include specifications of the exception of Article XX GATT, with some RTAs extending the exception to other issue areas, such as technical barriers to trade.

The EU and Singapore created recent examples for a second type of environmental and climate provisions. The EU-Singapore Free Trade Agreement[94] explicitly seeks to facilitate trade in climate-friendly goods and services. In addition, a separate chapter of the agreement is dedicated to non-tariff barriers to trade and investment in renewable energy generation, in which it is specified that parties will "refrain from adopting measures providing for LCRs or any other offset affecting the other Party's products, service suppliers, investors or investments" (Article 7.4[a]). The same agreement also includes a provision on reducing trade distortions resulting from fossil fuel subsidies, stating that "the Parties share the goal of progressively reducing subsidies for fossil fuels" (Article 13.11.3).

A third type of provision found in many different RTAs is aimed at deepening cooperation on climate change between the parties to the agreement, including general commitments to enhance climate policy efforts and reaffirmations of existing commitments under the climate treaties. Also, provisions exist on a range of specific issues, including adaptation, carbon markets, technologies, forests, and agriculture. Depending on the mandate – and, most importantly, budget allocations of the parties involved – such provisions can form the basis for subsequent technical cooperation, information exchange, and capacity building, and could even go beyond the commitments under the UNFCCC.[95]

89 ICTSD, "India Lodges WTO Appeal in US Solar Cells Dispute", *BIORES* 20, no. 15 (2016), http://www.ictsd.org/bridges-news/bridges/news/india-lodges-wto-appeal-in-us-solar-cells-dispute (accessed 8 December 2017).

90 ICTSD, "WTO Decision on Local Content Requirements Will Not Affect India Solar Ambitions, Officials Say", *BIORES* 20, no. 15 (2016), http://www.ictsd.org/bridges-news/bridges/news/wto-decision-on-local-content-requirements-will-not-affect-india-solar (accessed 8 December 2017).

91 WTO DS456, *India – Certain Measures Relating to Solar Cells and Solar Modules* (Geneva: WTO, 2016), https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds456_e.htm#bkmk456abr (accessed 8 December 2017).

92 WTO DS510, *United States – Certain Measures Relating to the Renewable Energy Sector* (Geneva: WTO, 2016), see https://www.wto.org/english/news_e/news16_e/ds510rfc_12sep16_e.htm (accessed 8 December 2017).

93 Markus W. Gehring, Marie-Claire Cordonier Segger, Fabiano de Andrade Correa et al., *Climate Change and Sustainable Energy Measures in Regional Trade Agreements (RTAs)*, Issue Paper 3 (Geneva: ICTSD, August 2013), http://www.ictsd.org/downloads/2013/08/climate-change-and-sustainable-energy-measures-in-regional-trade-agreements-rtas.pdf (accessed 8 December 2017).

94 See the EU Commission website for the text of the EU-Singapore Agreement: http://trade.ec.europa.eu/doclib/press/index.cfm?id=961 (accessed 8 December 2017).

95 As for instance in Article 19.8.2 of the Korea-Peru Free Trade Agreement, which includes provisions on energy efficiency, renewable energy, technologies of carbon dioxide capture, innovative environmental technologies, food security, conservation of biological diversity, and measures for evaluating the vulnerability and adaptation to climate change; see http://www.fta.go.kr/webmodule/_PSD_FTA/pe/1/eng.pdf.

Ways forward for the EU to Make the Trade Regime Supportive for Climate Action

The EU is a key player in international trade negotiations. Its efforts to negotiate an Environmental Goods Agreement as a plurilateral treaty under the WTO testify that the EU wants to promote trade also in unprecedented ways. When it comes to supporting international climate action through trade, there are several steps that can be taken. International scholars have proposed legal reforms and procedural improvements for reducing conflicts between trade and climate policy measures. The proposed options vary regarding their implementation potential. In particular, the prospects for a WTO reform seem bleak.

Nevertheless, we identify the reform options the EU and other countries could look for in the long term, medium term and short term; our evaluation is guided by the question of whether, and how, more certainty for policy-making can be created. As a mid-term strategy, we suggest, in particular, focussing on the role of regional deals for bringing forward a supportive role of trade for climate protection. Not least, promoting climate protection could be an ingredient for building up new levels of public support for trade negotiations.

The Long-term Vision: Improving Legal Guidance

One argument in favour of reforming WTO rules is that the case-by-case nature of WTO disputes does not provide sufficient structural legal guidance for the implementation of NDCs under the Paris Agreement. It instead leaves the settlement of climate-related disputes to a body that is obviously guided first and foremost by the rules of the multilateral trading system.[96] Legal guidance for clarifying the relationship between WTO rules and climate policy measures would need strong support from key WTO member countries.[97] If the demand for legal guidance increases, there are several ways forward.

Amendment

A first option is to amend relevant WTO agreements to change the relevant trade rules. Suggestions in this regard include amending Article XX GATT to explicitly accommodate climate change measures or measures taken pursuant to multilateral environmental agreements, or amending the SCM Agreement to provide space for green subsidies.[98] From a legal perspective, an ambitious reform through *amendments* or new rule creation would be attractive. It would increase the legal certainty and normative coherence across regimes and offer a solution for the longer term.[99] Yet, it is not clear what the content of such rules could be for serving both climate and trade aims. Moreover, negotiations will be very challenging, as at least a two-thirds majority of members need to agree, and in some cases even all members (Article X of the Agreement Establishing the WTO). Amendments may also lead to a complex legal situation if a sufficient number – but not all – of the WTO members accept it. Finally, amendments have hardly been used in WTO practice so far.[100]

96 See James Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes* (E15 Expert Group on Measures to Address Climate Change and the Trade System, 2016), 13–14, http://www3.weforum.org/docs/E15/WEF_Climate_Change_POP.pdf (accessed 8 December 2017); Tracey Epps and Andrew Green, *Reconciling Trade and Climate. How the WTO Can Help Address Climate Change* (Cheltenham, UK: Edward Elgar, 2010), 260–65.

97 Tamiotti, "The Legal Interface between Carbon Border Measures and Trade Rules" (see note 69), 1207.

98 International Bar Association, *Achieving Justice and Human Rights in an Era of Climate Change Disruption* (London: Bar, 2014), 166–67, http://www.ibanet.org/Document/Default.aspx?DocumentUid=0F8CEE12-EE56-4452-BF43-CFCAB196CC04 (accessed 8 December 2017).

99 Harro van Asselt, Francesco Sindico, and Michael A. Mehling, "Global Climate Change and the Fragmentation of International Law", *Law & Policy* 30, no. 4 (2008): 423–49 (440).

100 "The only amendment decision in the WTO was passed in 2005, which modified the TRIPS Agreement. In ten years, the decision has been accepted in only 53 local legislatures of the total 160 WTO Members." Beatriz Leycegui and Imanol Ramirez, *Addressing Climate Change: A WTO Exception to Incorporate Climate Clubs* (E15 Expert Group on Measures to Address Climate Change and the Trade System, 2015), 3.

Waiver

A second option is to waive specific WTO obligations for a limited time. *Waivers*, which can be adopted if there are "exceptional circumstances" (Article IX.3 of the Agreement Establishing the WTO), require a three-fourths majority, although consensus has remained the rule in practice.[101] A WTO member could argue that achieving climate policy objectives constitutes "exceptional circumstances". A key question to be clarified here is how to define the scope, that is, what are the actual "climate measures".[102]

The time-limited nature of waivers suggests that a waiver will not create long-term certainty, but nevertheless this might render it more appealing than a permanent amendment. Also, a waiver restricts the WTO jurisdiction in favour of "other international legal regimes which may have greater competence and legitimacy than the WTO to deal with certain issues",[103] and which actually have a legal mandate that affects trade.[104] If waivers were used repeatedly, for example when implementing the NDCs under the Paris Agreement, this could also create a longer-term effect for the consideration of climate policy issues under the WTO. Again, the limitations to introducing a waiver are set by the political interests in doing so.[105]

Authoritative Interpretation

A third option would be to adopt an *authoritative interpretation* of certain provisions in the WTO agreements by a three-fourths majority, although also here consensus would be the rule in practice.[106] Suggestions include that climate measures taken pursuant to the Paris Agreement are measures within the scope of Article XX GATT and Article XIV GATS.

On the one hand, the introduction of an authoritative interpretation of Article XX GATT would document consensus among WTO members on the importance of climate-related policies under the WTO regime. It would mainly affirm existing *opinio juris* around Article XX GATT, but by being explicit, it could deter judicial action by opponents to specific climate action.[107] On the other hand, a broad authoritative interpretation could give *carte blanche* for the protectionist application of trade policy tools. Although an authoritative interpretation cannot make non-trade rules directly applicable in a trade dispute, it could help tilt the balance towards a climate-friendly interpretation of certain provisions of the WTO agreements.

Peace Clause

Another way to give some leeway for WTO members' climate policies would be a time-limited *peace clause* for taking action against trade-related climate measures.[108] It could commit WTO members to wait before challenging national climate measures, or refrain from using countermeasures that restrict trade or otherwise have trade effects in WTO dispute settlements.[109] A comparable clause had been in effect for nine years with respect to agricultural subsidies. Hufbauer et al. (2009) suggest focussing on climate-related subsidies, in particular.[110] As with waivers, the challenge is to get the scope right by singling out those measures that legitimately seek to implement the Paris Agreement or otherwise promote climate goals. If this issue were solved, a peace clause would buy time that could be used for constructive dialogue

101 Gary Clyde Hufbauer, Steve Charnovitz, and Jisun Kim, *Global Warming and the World Trading System* (Washington, D.C.: Peterson Institute for International Economics, 2009), 97; Isabel Feichtner, "The Waiver Power of the WTO: Opening the WTO for Political Debate on the Reconciliation of Competing Interests", *European Journal of International Law* 20, no. 3 (2009): 615–45 (619).
102 Epps, Green, *Reconciling Trade and Climate* (see note 96), 255–56.
103 Feichtner, "The Waiver Power of the WTO" (see note 101), 645.
104 Ibid., 618.
105 James Bacchus, *The Case for a WTO Climate Waiver*, Special Report (Waterloo, Ontario: Center for International Governance Innovation, 2017), https://www.cigionline.org/sites/default/files/documents/NEWEST%20Climate%20Waiver%20-%20Bacchus.pdf (accessed 8 December 2017).
106 Claus-Dieter Ehlermann and Lothar Ehring, "The Authoritative Interpretation under Article IX:2 of the Agreement Establishing the World Trade Organization: Current Law, Practice and Possible Improvements", *Journal of International Economic Law* 8, no. 4 (2005): 803–24 (806).
107 Interpretations on Article XX can be found in WTO DS2, *US – United States – Standards for Reformulated and Conventional Gasoline* (1996), see https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds2_e.htm (accessed 8 December 2017).
108 Hufbauer, Charnovitz, and Kim, *Global Warming and the World Trading System* (see note 101); cf. Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes* (see note 96).
109 Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes* (see note 96), 14.
110 Hufbauer, Charnovitz, and Kim, *Global Warming and the World Trading System* (see note 101), 109–10.

rather than further confrontations over specific issues.[111] An ill-formulated peace clause, however, could potentially offer countries a *carte blanche*, and thus create a perverse incentive for introducing protectionist or otherwise trade-restrictive climate policy measures. A peace clause ultimately requires an amendment of the relevant WTO agreements, and it is therefore subject to the same limitations as other amendments.

Changing the Scope of the WTO Dispute Settlement Mechanism

Proposals exist to expand the jurisdiction of the WTO dispute settlement body to non-trade rules and principles, which could give climate obligations further weight as compared to free trade disciplines in WTO judicial decision-making. Again, this would need broad support from WTO members. A more feasible proposal would be to ensure that the composition of WTO panels and the AB as such reflect the necessary technical expertise to cover climate-related issues (e.g. supporting the determination of whether a certain policy measure effectively contributes to greenhouse gas emission reductions).

A Plurilateral Trade and Climate Agreement

A plurilateral trade and climate code to deal with a range of aspects on the climate-and-trade interface is also among the proposals.[112] This code could be adopted as a plurilateral agreement under Annex 4 of the WTO Agreement (similar to, for example, the Government Procurement Agreement) and does not require consensus. Similarly, the International Center for Trade and Sustainable Development (ICTSD) suggests a "Sustainable Energy Trade Agreement" that covers not only the liberalisation of trade in climate-friendly goods and services, but also non-tariff barriers such as technical standards.[113] A plurilateral agreement would not create rights or obligations for other WTO members, but its inclusion in Annex 4 does require consensus, as enforcement of the agreement would be allowed through the WTO's dispute settlement mechanism. The benefits of such an agreement would normally accrue to all WTO members, to the extent that it would cover subjects within the scope of the MFN obligations of WTO agreements.[114] The limited-membership arrangement would be open to participation by further WTO members and could thus expand its membership over time. Although the negotiations seem easier due to the lower number of parties, the approval of a plurilateral agreement as an additional Annex 4 agreement requires the agreement of all WTO members.

A Medium-term Strategy: Promoting Climate Policies through RTAs

Two benefits could result from RTAs. First, they could serve as role models for the multilateral system by testing innovative rules and procedures and by including specific topics that are difficult to negotiate multilaterally. Secondly, by extending membership gradually through openness, the benefits of an RTA could increase and pave the way for more global cooperation in a time when interest in global talks is low. With the negotiations on TTIP, there was an opportunity to facilitate trade in climate-friendly technologies between the US and the EU, and furthermore to ensure regulatory coherence, including aligning standards.[115] Bilateral agreements with small countries, such as the EU-Singapore Free Trade Agreement, do not offer this leverage. Nevertheless, smaller agreements can always inject new ideas into the debate.

During the last decades, EU trade policy with third parties moved from tariff reductions to reducing non-tariff barriers and including investment issues. The complexity of the deals has been increasing. Before CETA and TTIP, which both cover an array of issues beyond trade in goods, the EU set up separate deals

111 Hufbauer, Charnovitz, and Kim, *Global Warming and the World Trading System* (see note 101), 103–10, refer to the contested issue of BCA. Cf. Epps, Green, *Reconciling Trade and Climate* (see note 96), 254; Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes* (see note 96), 17.

112 Hufbauer, Charnovitz, and Kim, *Global Warming and the World Trading System* (see note 101).

113 ICTSD, *Fostering Low Carbon Growth: The Case for a Sustainable Energy Trade Agreement* (Geneva: ICTSD, 2011), http://www.ictsd.org/downloads/2011/12/fostering-low-carbon-growth-the-case-for-a-sustainable-energy-trade-agreement.pdf (accessed 8 December 2017).

114 Matthew Kennedy, *Legal Options for a Sustainable Energy Trade Agreement* (Geneva: ICTSD, 2012), http://www.ictsd.org/downloads/2012/07/legal-options-for-a-sustainable-energy-trade-agreement.pdf (accessed 8 December 2017).

115 Ingrid Jegou, Sonja Hawkins, and Kimberley Botwright, "What Role for Trade and Investment in the New Climate Regime?", *BIORES* 10 (2016): 13.

with specific issues addressing the regulatory environments of the trade partner countries, with the aim of achieving harmonisation (e.g. with Chile on technical issues) or mutual acceptance of equivalent standards (e.g. with Canada).[116] These issues are included in the latest mega-regionals. CETA Chapter 21, for example, creates a "Regulatory Cooperation Forum" in which administrative issues and regulatory approaches are discussed on a regular basis.[117]

The EU could thus consider engaging in a newly framed trade-and-climate strategy – with the aim of supporting the Paris Agreement – by negotiating with its key partner countries about trade and investment liberalisation. The list of issues could be extended to strengthening environmental laws and enforcement, and further promoting collaboration on climate-related issues, such as fossil fuel subsidy reform. In times when links to the US are weakening, ties with Canada and Latin America could be intensified. Another key partner is China. Last, but not least, as India is a very important player for protecting the global climate, EU-India cooperation should focus on renewable energy investment.

Already 25 years ago, NAFTA demonstrated that environmental standards could become part of a trade deal. A large number of agreements followed with "green" clauses or wording that associated trade rules with environmental goals.[118]

In light of the EU's experience with RTAs such as CETA and TTIP – where the negotiation and ratification processes were halted by protests from civil society and political interventions from Member States – the EU will need to rethink its trade strategy in general. A first attempt was made with the European Commission proposal "Trade for All" in 2015, which aims at promoting transparency, sustainable development, and human rights, thus reflecting the criticisms from civil society. The need for a new trade agenda is exacerbated by the transatlantic disruptions that have emerged since President Trump took office. In light of protectionism and the urgency of climate policy implementation under the Paris Agreement, the EU could leverage its role as a reliable climate actor by increasing trade cooperation with key partner countries from the OECD as well as the emerging and developing countries.

If the EU Member States can agree to develop RTAs in this direction, these deals hold the potential to facilitate multilateral agreement on climate–trade interactions in the longer term. The extent to which this potential can be realised depends on the parties to the RTAs. The greater the market power of the parties introducing specific standards, the greater the likelihood that such standards will be taken up elsewhere. Berger et al. (2017) find that asymmetry among the negotiating partners helped the industrialised countries to include environmental provisions and other complex issues in RTAs with emerging economies.[119] It is, however, a long way to go from the inclusion of standards in a greater number of RTAs to, ultimately, multilateralisation via the WTO.[120]

In the Short-run: Bringing forward Specific Issues under the Paris Agreement

Parties to the Paris Agreement will be negotiating the detailed implementation rules until the end of 2018. Trade-related aspects of the new climate regime will primarily be addressed in the improved forum on impacts of the implementation of response measures.[121]

For the EU it is important to embed the current implementation of the Paris Agreement at home in the wider context of trade relations.

Emissions Trading and Carbon Pricing

The role of emissions trading under the Paris Agreement is implicit in Article 6, although no details exist yet on the type of tradable units, their fungibility, nor on their accounting or environmental integrity. Until China has set up a fully-fledged ETS, the EU ETS represents the largest market for allowances globally. It has restricted access for credits from foreign offset

116 Bettina Rudloff and Moritz Laurer, *The EU As Global Trade and Investment Actor – The Times They Are Achangin*, Working Paper Research Division EU/Europe (Berlin: Stiftung Wissenschaft und Politik, January 2017), 22–23.
117 See CETA consolidated text, 173 ff., http://trade.ec.europa.eu/doclib/docs/2014/september/tradoc_152806.pdf (accessed 8 December 2017).
118 Berger et al., *Towards "Greening" Trade?* (see note 36).
119 Berger et al., *Towards "Greening" Trade?* (see note 36), 3 and 15.
120 Kateryna Holzer and Thomas Cottier, "Addressing Climate Change under Preferential Trade Agreements. Towards Alignment of Carbon Standards under the Transatlantic Trade and Investment Partnership", *Global Environmental Change* 35 (2015): 514–22.
121 http://unfccc.int/cooperation_support/response_measures/items/4908.php.

projects in the third phase (2013–2020) due to environmental integrity concerns and, more generally, a collapse in the EU ETS allowance price. Thus, the EU is a key negotiating party for implementing a new regulatory environment for international market-based approaches under Article 6. However, as long as there is little political interest in linking the EU ETS with other systems or increasing the demand for foreign allowances and credits, the provisions will remain a theoretical exercise – especially as long as the number of countries that would like to offer allowances in international markets outnumbers those of potential buyers by far.[122]

In 2016, the EU started the process of legislative amendments for the post-2020 phase of its ETS in order to follow up on its NDC, achieving a legislative compromise in November 2017 that increases auctioning and tightens supply. These changes are aimed at achieving the EU NDC, which requires a 40 per cent emissions reduction by 2030 compared to 1990. For this to materialise, the EU ETS will have to decrease the emissions from the relevant industrial and power sectors by 43 per cent (compared to 2005) by 2030. Already in the third phase (2013–2020), the European Commission included free allocation as a means to ease the cost pressures for sectors that have competitiveness concerns. This policy to prevent carbon leakage will continue after 2020.[123] During the legislative process, the Environmental Committee of the European Parliament suggested applying border-adjustment pricing in combination with auctioning for the cement sector to prevent carbon leakage and to increase the incentives for this sector to decarbonise.[124]

Although border carbon adjustment is a political minefield, in this specific case it would have increased the efficiency of EU climate policy, because it is a tool that is tailor-made.[125] It is well documented that the cement sector imported clinker as a reaction to the EU ETS and sold the free allowances. Little to no incentive existed to innovate for low-carbon alternatives.[126]

The idea of climate policy coalitions (often called "clubs") is also included in Article 6 PA. Such a constellation could include a preferential deal on market access for climate-friendly technologies or an extension of carbon-pricing cooperation, which discriminates against goods and services of third parties.[127] This approach, which ultimately would aim at progress for the Paris Agreement by putting pressure on non-cooperative parties, is difficult to justify under the current WTO regime (as discussed in Section "Identifying the Upcoming Issues", p. 15).

Nevertheless, the EU could consider cooperating more closely along these lines with other countries on climate policy-making in light of non-cooperative US climate policy strategy.

For fossil fuel subsidies, the EU, as an important first step, could promote to enhance the transparency of such subsidies, for instance by adopting a new notification template that provides further details on subsidies in a standardised fashion[128] and allows non-governmental organisations to report on the level of non-actionable subsidies.[129] Neither of these options would require changes in the WTO's legal framework.[130] At present, it seems quite unlikely that WTO members are willing to renegotiate the subsidies regime to take into account the climate impacts of

122 Kreibich and Obergassel, *Carbon Markets after Paris* (see note 39).

123 See European Commission, *Climate Action, Emissions Trading System (EU ETS), Revision for phase 4 (2021–2030)*, https://ec.europa.eu/clima/policies/ets/revision_en (accessed 8 December 2017).

124 See European Parliament, *Report on the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC to Enhance Cost-effective Emission Reductions and Low-carbon Investments*, A8-0003/2017, Amendment 12, 15–16, http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A8-2017-0003+0+DOC+PDF+V0//EN (accessed 8 December 2017).

125 Michael Mehling, Harro van Asselt, Kasturi Das et al, Designing Border Carbon Adjustments for Enhanced Climate Action, (London: Climate Strategies, 2017), http://climatestrategies.org/wp-content/uploads/2017/12/CS_report-Dec-2017-4.pdf (accessed 8 February 2018).

126 Karsten Neuhoff et al., *Inclusion of Consumption of Carbon Intensive Materials in Emissions Trading – An Option for Carbon Pricing post-2020*, Report (London: Climate Strategies, 2016), http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2016/06/CS-Report.pdf (accessed 8 December 2017).

127 A Carbon Pricing Leadership Coalition was established in 2014 to support carbon-pricing policies, including countries, states, and private-sector actors, https://www.carbonpricingleadership.org (accessed 8 December 2017).

128 Steenblik and Simón, *A New Template for Notifying Subsidies to the WTO* (see note 73).

129 Casier, Fraser, Halle et al., "Shining a Light on Fossil Fuel Subsidies at the WTO" (see note 64).

130 Cleo Verkuijl Harro van Asselt, Tom Moerenhout et al., Tackling Fossil Fuel Subsidies through International Trade Agreements, (London: Climate Strategies, 2017), http://climatestrategies.org/wp-content/uploads/2017/11/CS-Report_FFS-2017.pdf (accessed 8 February 2018).

fossil fuel subsidies, for example by qualifying them as either "prohibited" or "actionable".[131]

Technology Transfer and Intellectual Property Rights

The European Commission takes a tough stance on lowering IPR protection, as it regards IPR as a crucial factor in incentivising investment in green technologies and also when bringing climate-friendly technologies to third countries. Even though it regards concessions as difficult and thinks they should be limited to like-minded countries,[132] reconsidering this stance will be important for deploying climate-friendly technologies faster in developing countries – not least to help them implement their NDCs. It can be anticipated that the IPR issues will not be resolved in 2018, as any solution at the UN level needs to incorporate the concerns of both developing and developed countries. The underlying conflicts about IPRs, however, block solutions to specific aspects of the protection of climate technology and know-how.

Aviation and Maritime Transport

The EU decision on the ETS in the fourth phase includes a placeholder recital in the text requiring action to regulate shipping emissions under the EU ETS from 2023 onward should the UN's IMO fail to take adequate global action by then. This step was announced together with action on aviation.[133] The shipping industry rejects such unilateral legislation and warned the EU not to endanger the multilateral process under the IMO.[134] The IMO's roadmap foresees that any commitment shall be postponed until 2023.[135] With such an inclusion of emissions that do not stem from EU territory the ETS reform establishes a case where imports are included in the ETS.[136] It can be expected that this will trigger another conflict about the legitimacy of such measures under WTO law, contributing to the debate about the need for mid- to long-term legal guidance.

Improving the Institutional Setting

In the current phase of negotiations about a Paris Agreement rulebook and more ambitions until 2020 (Talanoa Dialogue), the EU – and also other countries promoting the Paris Agreement - should use existing forums to a greater extent to interact with their trade partners on the trade-related implications of climate policy-making. This would limit the potential for political conflicts around trade and climate as well as provide better information among the institutions involved in such disputes. There is already informal interaction between the UNFCCC Secretariat and the WTO members and institutions (in particular, the CTE). A next step in that direction could include working towards an upgrading of the Trade Policy Review Mechanism and the CTE of the WTO as well as the Subsidiary on Body Scientific and Technological Advice (SBSTA) of the UNFCCC. The Trade Policy Review Mechanism could be strengthened to include a compulsory assessment of the impact of relevant domestic measures on emissions and efforts to address climate change.[137]

131 Gary Horlick and Peggy A. Clarke, *Rethinking Subsidy Disciplines for the Future*, Synthesis of the Policy Options no. 18 (E15 Expert Group on Measures to Address Climate Change and the Trade System, 2016), http://e15initiative.org/wp-content/uploads/2015/09/E15_no18_Subsidies_final_REV_x1.pdf (accessed 8 December 2017)

132 See EU Commission, *Trade, Growth and Intellectual Property – Strategy for the Protection and Enforcement of Intellectual Property Rights in Third Countries*, COM(2014) 389 final (Brussels, 1 July 2014), http://trade.ec.europa.eu/doclib/docs/2014/july/tradoc_152643.pdf (accessed 8 December 2017).

133 See European Parliament, "Cost-effective Emission Reductions and Low-carbon Investments. Amendments Adopted by the European Parliament on 15 February 2017 on the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC to Enhance Cost-effective Emission Reductions and Low-carbon Investments (COM(2015)0337 – C8-0190/2015 – 2015/0148(COD))" (2017), 4, http://www.europarl.europa.eu/sides/getDoc.do? pubRef=-//EP//NONSGML+TA+P8-TA-2017-0035+0+DOC+PDF+ V0//EN (accessed 8 December 2017).

134 IMO, "IMO Secretary-General Speaks Out against Regional Emission Trading System", Press Briefing, 9 January 2017, http://www.imo.org/en/MediaCentre/PressBriefings/Pages/3-SG-emissions.aspx.

135 See Jonathan Saul, "EU Ship Levy Proposal Risks Undermining Efforts to Cut Sector Emissions: U.N. Agency", *Reuters*, 9 January 2017, http://www.reuters.com/article/us-shipping-climate-eu-idUSKBN14T1JY (accessed 8 December 2017).

136 See Robert Ireland, *The EU Aviation Emissions Policy and Border Tax Adjustments, World Customs Organization*, Research Paper no. 26 (Brussels: World Customs Organization, 2012), 4, http://www.wcoomd.org/~/media/wco/public/global/pdf/topics/research/research-paper-series/26_eu_aviation_emissions_btas_en.pdf?la=en (accessed 8 December 2017).

137 Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes* (see note 96), 16.

In addition, decision-making and administrative bodies in both the trade and climate regimes could seek to actively liaise in a systematic way, thereby strengthening their knowledge base and creating a better understanding of the implications of trade–climate interactions for the respective objectives, principles, and legal obligations in each regime. For such a move, the EU would need to give an example by aligning its climate policy and negotiation agenda with its trade agenda. The mandate of the CTE could be explicitly extended to include climate change policy, turning it into a Committee on Trade, Environment and Climate Change. If this proves to be a feasible option, it could include representatives from WTO members with distinct knowledge of UNFCCC issues.

Increasing Transparency through Notification and Review

Enhanced transparency is key for building trust between developing, emerging, and industrial countries when implementing the Paris Agreement. In this respect, the EU could act once more as a role model by promoting transparency also for trade-related aspects of EU climate actions. Information about trade-related climate measures could be enhanced through notification of such measures in a formal manner, for example by including in future NDC submissions to the UNFCCC a section that highlights trade-related aspects of specific national climate actions. Another option that could provide information, also for the WTO committees, would be to set up an information hub at the UNFCCC Secretariat through the creation of a central registry. Parties to the UNFCCC could log and record trade-related climate measures, or even include such information in the transparency template guiding countries in their mandatory reporting under the Paris Agreement. The notification of trade-related climate measures could be linked to the work programme of the UNFCCC forum on the impacts of the implementation of response measures. Addressing trade issues in the forum will undoubtedly be challenging – as it has been in the past – but the more technical turn of the forum's new work programme may offer space for less-politicised discussions.

For specific issues, such as fossil fuel subsidies and policies to promote renewable energy, the notification to the SCM Committee would help increase transparency on such measures. For issues that touch upon the legality of the GATS, the evaluation of the classification of environmental services in the WTO Committee on Trade in Services could be undertaken. This could aim at extending the WTO services classifications, with a view to coordinating negotiations on trade in environmental goods with negotiations on related services, ultimately opening the door for greater legal certainty on climate-related services under the GATS.

Abbreviations

AB	Appellate Body
ASEAN	Association of Southeast Asian Nations
BCA	border carbon adjustment
CDM	Clean Development Mechanism
CETA	Comprehensive Economic and Trade Agreement
CMA	Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CRS	Congressional Research Service
CTE	Committee on Trade and Environment
CTEI	Centre for Trade and Economic Integration
CVD	countervailing duty
DSB	dispute settlement body (WTO)
DSU	dispute settlement understanding (WTO)
EDF	Environmental Defense Fund
EFTA	European Free Trade Association
EGA	Environmental Goods Agreement
ETS	emissions trading system
EU	European Union
FIT	feed-in tariff
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
ICAO	International Civil Aviation Organization
ICTSD	International Center for Trade and Sustainable Development
IETA	International Emissions Trading Association
IISD	International Institute for Sustainable Development
IMO	International Maritime Organization
INDC	intended nationally determined contribution
IPR	intellectual property right
JI	Joint Implementation
JNNSM	Jawaharlal Nehru National Solar Mission
LCR	local content requirement
MERCOSUR	Mercado Común del Sur
MFN	most-favoured nation
NAFTA	North American Free Trade Agreement
NDC	nationally determined contribution
OECD	Organisation for Economic Co-operation and Development
PA	Paris Agreement
PPM	processes and production method
RCEP	Regional Comprehensive Economic Partnership
RTA	regional trade agreement
SBSTA	Subsidiary on Body Scientific and Technological Advice
SCM	subsidies and countervailing measures
TBT	technical barriers to trade
TPP	Trans-Pacific Partnership
TRIMs	Trade-Related Investment Measures
TRIPS	Trade-Related Aspects of Intellectual Property Rights
TTIP	Transatlantic Trade and Investment Partnership
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
WTO	World Trade Organization